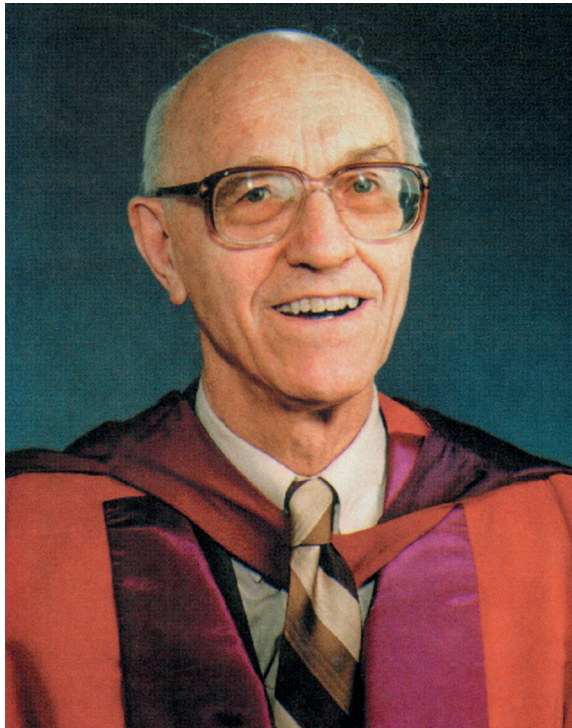


An obituary for Frank Andersen



Around the globe, Francis Ian Andersen will be remembered as a renowned scholar, particularly in the field of ancient languages, and for his love of Classical Hebrew. But his life was much more than scholarship. As a family friend put it, “Your dad lived about ten lives in one! He never retired. His mind never dimmed. He loved two wonderful women. And enjoyed companionship into his very old age. His presence would fill a room. There was always fun and leg pulling as well.” He was born in Warwick, Australia. He died aged 94 at 3 am on Wednesday 13 May 2020.

Frank had four consistently constant foci: his family, his scholarship, his relationships, and his quest for authentic faith. For Frank, family, research, and the friends and colleagues who flowed in and out of his home or with whom he corresponded were somehow inseparable. Together, they brought meaning and harmony. Together they invested the impermanent with the unexpected and with the allure of the other side of the hill. Preparing his own ever-varying soup for the lunch-time visitor went side by side with gobbling up the latest research in his field, a hunger for serious conversation, and a questioning faith. In his autumn years we hear him say, “I have sought to tear myself free from the handrails of rational thinking in order to grasp the hand of God.”

The cosmos itself seemed to know Frank's passion and gift for ancient languages. It was a passion inseparable from his love of poetry, be it Emily Dickinson, Thomas Merton, or the Hebrew Bible, soaked as it is in the poems of prophet and bard, of love-song and psalm. Student and colleague alike were often reminded that more than a third of the Hebrew Bible is written not in the limitations of prose, but in the ever-open invitations of poetry. Frank had the highest regard for Ephrem the Syrian (c. 306–373), a great poet of the Middle East who wrote in his native language of Syriac, a primary dialect of Aramaic and the first language into which the Greek New Testament was translated. The older Frank got the more he identified with Ephrem's sense that it is only in poetry and metaphor that we can adequately begin to speak or write about God. Early in life, Frank also studied Russian at the University of Melbourne. After his native English, it became his favoured modern language. Russian scholarly works and literature dot his library. Leo Tolstoy's *War and Peace* he read in the original.

Frank's list of publications fills almost five A4 pages. He wrote or co-authored 18 books, plus an Andersen-Forbes six-volume concordance to the Pentateuch, and an unpublished Andersen-Forbes 16-volume concordance to the Hebrew Bible, which he bequeathed to a library. He also published more than a hundred articles. Many of his volumes are either major commentaries on Old Testament books or on the grammar and syntax of Classical Hebrew. But he was equally conversant with the Pseudepigrapha, the Greek New Testament, and with other ancient languages, including Ugaritic, volumes of which line shelves in his lounge-room.

Through the Graduate Theological Union, Frank formed a life-long collaboration on the Anchor Bible with Classical Hebrew scholar David Noel Freedman. Over 40 years they published four volumes on the prophets Amos, Hosea, Micah, and Habakkuk. That was also how Frank, in his doctoral seminar on Hebrew Syntax, first teamed up with his close friend and research-collaborator Dean Forbes. Through Dean's position as Principal Medical Department Scientist and specialist in cardiac electrophysiology in Hewlett-Packard Laboratories in Silicon Valley, they had access to the latest computers for their joint research on computer-assisted Hebrew grammar. Together they produced 10 books, 15 published papers and book chapters, and the Andersen-Forbes database. The database is now part of a non-profit organisation in South Africa, BH Resources, and will continue to grow and serve scholarship with Dean Forbes and other scholars' collaboration. Frank and Dean's pioneering volume *Biblical Hebrew Grammar Visualized* (2012) is the culmination of two life-times' research, the kind of work that comes along only rarely. The scope of its aims is audacious and, as its authors are aware, it is sometimes provocative and invites debate. The history of the project is published in their paper "A tale of two sitters and a crazy blue jay" (2014).

Not too many scholars have authored a work that led to an international conference to discuss its findings. That was the result of Frank's early work *The Verbless Clause in the Hebrew Pentateuch* (1970). His insights on a string of words that find no need of a verb help change the way we think about biblical Hebrew. It led to *The Verbless Clause in Biblical Hebrew: Linguistic Approaches*, a collection of research essays edited by Cynthia L. Miller (1999).

But his was a mind that felt equally comfortable — or was it uncomfortable — probing the agony and abandonment of Job. At one point in his much-read and translated commentary on the book by that name (first published in 1976), linguistic scholarship and emotional insight converge when he suggests that verses deemed problematic because of their convoluted and, at moments,

virtually incoherent Hebrew are perhaps nothing less than the Hebrew poet's way of screaming out the intolerable suffering of the book's iconic hero. "The poetry catches the wild cries," he wrote. In a Jobian manner, Frank lamented those who choose, for their own reasons, to condemn rather than seek to understand the terrors of mental ill-health so prevalent in our society.

Frank was no stranger to suffering. He knew struggle. He named the darkness. Along with joy and gratitude it is there in his poetry. The pulse of the autobiographical perhaps in:

Not weakly dying,
No faintly fading spirit this,
But death defying
Plunging the dark abyss.

Shadows of lonely and dark corridors of childhood lingered in later years. And so too did the family grief at the loss of his and Lois' son Martin, who lived with epilepsy and while still in his teens died in his sleep. "Martin was," writes Frank, the "always cheerful one." Through the years, he and Lois always told people, "We have five children, and some find this hard to grasp. They think we have four. We would not like the other children to think that they would no longer belong to the family if they died." Inevitably, Martin's "life and death left a deep and lasting effect." Forty years on and Frank records that as a family "we still often find ourselves talking about Martin," and "sometimes weeping again."

Remembering this man's love of and devotion to his family is no obituarial cliché. He adored, respected, and was proud of his children — John, David, Nedra and Kathryn, and his and Lois' seven grandchildren, Sean, Vivienne, Erin, Lindsay, Lalita, Tiria, and Michael. "I remember," says his nephew, Graeme Garrett, "when Frank was a revered professor of Old Testament in Berkeley, California, his amazing persistence in the unforgiving art of baking sourdough bread. When once again, after all the variegated ingredients, carefully weighed, painstakingly sieved, endlessly kneaded, lovingly rested and precisely sculptured, emerged from the oven the colour, shape and relative density of a brick, Frank kept on until he nailed it; just because the family loved sourdough bread and he loved to give it to them." There was, too, his infectious humour: "Who could forget that room-filling laugh when Frank pulled off an unlikely open *misère* in a game of 500, to drag his floundering team from the brink of defeat to the threshold of victory?"

In this world of brokenness and need, of unwanted refugees, of persecuted asylum seekers, of deadly racism, of deliberate division, and of human-made climate chaos — where, to quote poet Jan Richardson, "the world is always ending somewhere, somewhere the sun has come crashing down" — it is easy to conclude that what we do is of little consequence. Frank sometimes felt that way. And said so. He was acutely aware of the uncountable hours demanded by the minutiae of his detailed syntactic analysis. "A waste of good time?", he would ask. I, for one, could identify but disagree. On a planet in a universe in which everything is interconnected, Frank had been gifted with remarkable linguistic skills accompanied by an extraordinarily capacious memory. But to press his question, why spend part of one's "wild and precious life," as Mary Oliver puts it, beneath the surface of an ocean of little words? Because, dear Frank, not many people on planet earth, could, at one end of a continuum, help bring to the world through diplomacy, scholarship and hard work the priceless ancient Leningrad Codex — the text of the whole Hebrew Bible — housed in the famous Russian National Library in St Petersburg; along that continuum read the

Hebrew text from end to end, annually whenever possible, with an eye on its critical apparatus, forever finding the as-yet unexplained; and at the other end of that continuum be capable of analysing not simply its every verb, noun and particle, but also how each of those words function, fit together, get on with one another, and end up telling a story.

In his book *Dodging Angels on Saturday*, Graeme Garrett, mentioned above, has this to say about words: “It has taken millennia to forge the languages we speak. We don’t make them up as we go along. If we forget that, we forget the depth meaning of the words we use, and as a result are condemned to live on the surface of things. We think the first little bead we get on the meaning of a word is all it ever meant or can mean.” “But,” continues Graeme, “words are like human lives. They have a story to tell. The story lies embedded in their sounds and shapes, *and in the way they work with other words around them*. If we don’t know something of the story we won’t know much about the word.” How well Frank knew this. In this aspect of his scholarship, he was a wide-horizon person. It is the poem, the song, the story, the large narrative, that he thirsted for. But because poem and song, saga and story, lie embedded in the sounds and shapes of the words with which they are spoken and written — and because he could — Frank pursued the exacting sciences of morphology, phonology, syntax and discourse analysis. And because the drama of the Hebrew Bible lies embedded in “the way words work with other words around them,” he and his friend and colleague, Dean Forbes, collaborated in a remarkable life-time venture.

In his book *Real Presences*, George Steiner shows that all words, all literature, including the Bible, demand “an exact sensitivity to syntax, to the grammars which are the sinew of articulate forms.” “It is via grammar,” says Steiner, “in the deepest sense that meaning enters, that it steps into the light of accountable presence.” In other words, we cannot have accurate dictionaries and translations, worthy of their originals, that reach across the chasms of one language to another, allowing the encyclopaedia of one tongue to converse with the encyclopaedia of another, without the research that gives us access to how words work together: to an exacting sensitivity to syntax. That is part of Frank Andersen’s gift to us — a gift that was an act of love. As in science across the ages, I suspect that in times to come it will be the dedication to the microscopic, the worthiness in his own work which Frank sometimes doubted, that will be seen as his and Dean’s greatest vocational legacy.

Marriages are made in heaven and consummated on earth, quipped John Lyly. Spiced with a touch of humour, it is an apt metaphor for the collaboration of Francis I. Andersen and A. Dean Forbes. Opposites in many ways, their differences gave vitality to their work. Both had a penchant for precision. But Dean, like Einstein, looks for harmony. As a computational linguist, mathematician, and statistician, he searches his linguistic heavens primarily for tidal shifts and gravitational patterns. When push comes to shove, Dean seems happier measuring the statistical word-waves that beat rhythmically across his corpus shores than spending endless time examining some minuscule aberration. For Frank, yes, an eye for the far horizon; for harmony where it becomes evident. But he was never happier than when he found yet another of those elusive and annoyingly inexplicable syntactic black holes, and never satisfied till, were it possible, he had traced its cause and its purpose. He was, in Steiner’s words, that “grammarian-reader ... [who] hears, feels the means of meaning beneath the skin, [who] encounters the nerve and bone structure beneath the verse and the sentence ... [and who] has learnt to hear the key-relations and pitch that are the grammar of music.” It was a formidable partnership. It was, borrowing words from William

Faulkner, “a life’s work in the agony and sweat of the human spirit, not for the glory and least of all for profit, but to create out of the materials of the human spirit something which did not exist before.” In later years, when Dean lived in Palo Alto, California, and Frank in Donvale, Victoria, and regular visits were no longer an option, distance did not diminish their personal and work relationship. Dean phoned his friend and colleague each weekday about 11 am Melbourne time.

Intentionally, Frank lived into the truth that all scholarship has a context in where we come from, who we are, and what we allow to influence us. He was poignantly aware of the confluence of the vicissitudes of history and culture, and the mix of nature and nurture in his own life. In later years, Frank, surrounded by books, would often work at his research in his armchair in the midst of his family. To not discuss and debate what he was working on with colleagues and friends was unthinkable. He knew how to bury himself in a project, but he took enormous pleasure in welcoming a never-ending stream of students and friends into his home. “When are you coming to see me?” was, I’m sure, not just reserved for the author of this tribute.

Sometimes it helps to see a friend or acquaintance through another person’s eyes. And little things can tell a lot. Eli Evans, who worked with Frank and Dean on behalf of the company publishing their syntax database, writes: “I hate to use the word ‘jovial’ because I don’t think it quite captures the mix of warmth, kindness, intellect, and focus that characterized Frank Andersen as I knew him. Opinionated. Wise. Playful, but not frivolous. Demanding, but welcoming. I think I’m going to stick with jovial.” From his nephew Graeme, in his eulogy, we hear: “Researchers, readers, listeners, students, conversation partners, around the globe, have all felt, as I have, the exhilarating gravitational pull of Frank’s sheer intellectual brilliance. Whatever it was, his passionate explorations were offered freely, not to ensnare others in orbit around himself, but for precisely the opposite reason. To encourage them, using his deep understanding as a platform, to launch into the trajectory of their own vocation in life, whatever that might be.” A mature-age researcher and doctoral student recalls: “Frank’s contribution to my own work has been substantial: his penchant for minutiae has doubled the quantity of data I am needing to collect, but his quest for having all bases covered means that although I have ended up with a huge task, as he says himself, this research will provide a solid foundation for a very long time to come. I am enormously grateful to have known him.”

Relationships mattered. Frank Andersen didn’t live in an academic bubble. He was kind and generous. He would have regarded his regular greeting of the checkout person at the local supermarket by name as unremarkable but knew that it made a difference to a person’s day. His favourite charity was Médecins Sans Frontières because of its compassion, courage, and crossing of all religious and cultural boundaries. He enjoyed a detective yarn. When living with Dean and Ellen Forbes in Palo Alto, Dean reports that “evening shutdown typically found Frank munching a bedtime orange and heading off to read a pulp mystery, anything by PG Wodehouse, or some such.”

Conversations with a close and trusted friend have no boundaries. Borders disappear. Talking with Frank was like that. That at least was my own experience. Whenever we met, small talk somehow stood little chance. With Frank, it shrivelled almost immediately. Whatever the topic, we were soon in at the deep end. Often, I would present him with a previously unexamined problem from my preparation of my Syriac-English lexicon. He delighted in exploring the problem from

every angle, and in the process could not in his or anyone else's work "sanctify sloppy thinking, sentimentality, or mere subjectivity." He never sought an easy solution. Rather, one would go away with questions that would help lead to a resolution or to identify a syntactic or semantic ambiguity. For me, Frank is a constant reminder that when we enter the realm of an ancient text, we need to become poignantly aware of the humility with which we need to approach it. He embodied that kind of intellectual humility, a humility that calls upon the summoned self and reminds each generation of the inevitable limitations of even the best of its contemporary resources.

As his son David details, Frank's career began in the science of physical chemistry. He accepted a position as Demonstrator in Chemistry at the University of Melbourne, where he taught until 1953. He received a Master of Science in Physical Chemistry in 1951, and a Bachelor of Arts in Russian in 1955, both from the University of Melbourne. He always saw his education in science and scientific methods as foundational to his transition to his study of ancient languages and of the Hebrew Bible. In 1957, Frank received a Fulbright Scholarship to study at Johns Hopkins University under William F. Albright. He took a PhD with a dissertation entitled *Studies in Hebrew Syntax*. In 1960, he returned to Ridley College, Melbourne, as Vice-Principal. In 1963, he accepted an appointment as Professor of Old Testament at the Church Divinity School of the Pacific, in Berkeley, California. In 1973, he became Warden of the College of Saint John the Evangelist in Auckland. A year later, he returned to Australia. From 1974–75, he was Exchange Professor at the Department of Near Eastern Studies at the University of Michigan. In 1975, he became Associate Professor of History at Macquarie University, in New South Wales, where he taught until 1980. In 1981, he became Professor of Studies in Religion at the University of Queensland. In 1988, he returned to California where he taught until 1993 at New College Berkeley. In 1994–1997 he became David Allan Hubbard Professor of Old Testament at Fuller Theological Seminary. On his permanent return to Melbourne in 1998, he was appointed Professorial Fellow, Centre for Classics and Archaeology at the University of Melbourne. For many years he was a valued member of the editorial board of this journal, *Ancient Near Eastern Studies (ANES)* and its supplement series, both devoted to the archaeology, texts and languages of the ancient Near East. Frank was also a close friend and colleague of Antonio (Tony) Sagona (1956–2017), who was professor of the Centre, editor of the *ANES* journal, and co-editor of its monograph series, until his death in 2017 at the beginning of his seventh decade. In 2016, Frank was made Research Fellow, Department of Hebrew, University of the Free State, Bloemfontein.

"He loved two wonderful women" is an intriguing comment for those "who knew not" Frank! But its truth was like the warmth of a hearth-fire in Frank's life. He married Lois Garrett, a paediatrician, in 1952, and Lois' interests, values, intellect, and deep calm ("I begin each morning by opening an imaginary cupboard, bundle up my problems, throw them in and shut the door") were a force at the core of Frank's more passionate and tumultuous personality. "During his multi-week stays in Palo Alto, our mornings," says Dean Forbes, "would typically begin with Frank announcing the number of days he and Lois had been married (a sum I once confirmed by financial calculator)." Perhaps no husband could be paid a greater compliment than that given to Frank by his son John at his father's funeral service when he said, "I cannot fathom the importance of the legacy dad left me in the quality of the devoted marriages he modelled first with Lois and more recently with Margaret. He demonstrated how you treat a woman." While in California, Frank and Lois taught as colleagues at New College Berkeley.

Lois died in 2010. Frank was bereft: “I miss Lois terribly, more than I can say. Everything I see every day reminds me of her, and God had given me the precious gift of tears. I still have the sadness of loneliness whenever I think of her.” Then took place what seems to happen only in romance fiction. While studying as a teenager in Queensland in the 1940s Frank had met and dated a woman by the name of Margaret Beazley. But their careers took them in different directions. Margaret pursued nursing in Queensland. Frank returned to Melbourne. Both married, happily. Margaret and Reg Johnson had six children, 23 grandchildren and 32 great grandchildren. Reg died in September 2012. For 70 years, Frank and Margaret never had contact. When Lois died, a mutual friend who through unusual circumstances had maintained contact with both families, decided to reintroduce Margaret and Frank. Correspondence began. So did a secret romance. In 2015, surrounded by friends and family, they were married at Canterbury Baptist Church where one of Margaret’s daughters is a minister. Frank was 89, Margaret was 87. They lived in Frank’s home in Donvale, where every room is lined with Frank’s unique library, and which for their five years together remained a hub of hospitality. As I write this obituary, Margaret is returning to her family in Queensland.

To the end, Frank did not stop changing, and that was by choice. His was a quest of the spirit. In a profound way, his decipherment of ancient texts brought the personal and vocational together. For him, these texts are bearers of humanity’s unfinished past, and of its aspirations and failures, creativity, memory, art, and culture. They are the surface of the present, and a harbinger of the future. He was a man of “soul and sense,” to use a phrase of Dorothy Sayers, whose life and writings he so admired.

In this tribute to a long and well-lived life, it seems fitting to end with words from a posted tribute by Dean Forbes: “Francis Ian Andersen was a remarkable enlarger of our field. For me, he will always evoke these memorable words of Herman Hesse:

And those of us who trust ourselves the least,
Who doubt and question most...
These it may be will make their mark upon eternity.”

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In memoriam Clifford Leslie Ogleby



Clifford Ogleby, more commonly referred to as ‘Og’ or ‘Oggie’ by his friends, died in the third week of May 2020, in his 65th year.

Cliff completed a surveying degree at the University of Melbourne in 1976 and, after a short period working as a field surveyor, returned to the university as a sessional teacher in 1981. His commitment to his students and talent for student-centred teaching were quickly recognised: he was appointed lecturer, then senior lecturer, and was finally made teaching specialist toward the end of his career. Cliff retired in 2018 after 38 years of dedicated service to the University of Melbourne and the (now) Department of Infrastructure Engineering.

Cliff was a passionate and charismatic presenter and educator, who was held in the highest regard by his students and colleagues. He was recognised many times by them through awards for teaching excellence and grants for research and development related to learning and teaching innovations. He was incredibly popular with the students he taught and the postgraduates he supervised. In a world of teaching metrics, he received overwhelmingly positive feedback, year after year.

As well as accolades for learning and teaching, Cliff was also a very active applied researcher. In his early career he became involved in the recording of Indigenous rock art and other artefacts. His passion for heritage documentation never diminished, and it later extended to archaeological sites in Australia, Papua New Guinea, Syria and Georgia. Long before the days of drone surveys, Cliff developed innovative platforms for low altitude mapping based on kites, bipods and balloons, and he was an early adopter of 3D recording devices such as image correlators and laser scanners. He made invaluable contributions to many University of Melbourne fieldwork seasons, always with students in tow to reap the benefits of his experience and be inspired by his enthusiasm.

Cliff's engagement with industry and contributions to the profession were also exemplary. For several decades, he was involved in organisations such as the International Society for Photogrammetry and Remote Sensing (ISPRS), Comité International de la Photogrammétrie Architecturale (CIPA), Remote Sensing and Photogrammetry Association of Australia (RSPAA) and the (now) Surveying and Spatial Science Institute in Australasia. Cliff was part of many working groups — as both active member and office bearer — and was always a keen contributor to conferences, seminars and workshops. He was the first Australian to become a member of CIPA, and his usual passionate approach led to him becoming Secretary-General, Vice President and then President between 2006 and 2010. Perhaps his most visible professional role was as director of the highly successful 22nd ISPRS Congress, held in Melbourne, Australia in 2012. There is no doubt that his unconditional commitment to bidding for the congress and his leading role in its eventual management made a massive contribution to its technical, social and financial success.

Cliff could be argumentative, loud and quick tempered, but also charming, witty and incredibly generous. Many, many times he hosted international visitors at his home and took them camping or visiting rock art sites because he wanted them to have an outstanding experience in Australia. He went out of his way on countless occasions to mentor and inspire those he taught. Cliff's lasting legacy is his unbounded kindness and generosity to his colleagues and especially his students.

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Notes on the Achaemenid and Partho-Sassanian periods at Yanik Tepe, northwestern Iran, excavated by Charles Burney

Geoffrey D. SUMMERS and Ahmet ÇİNİCİ

Abstract

*Excavations at Yanik Tepe in the Urmia Basin, northwest Iran, were conducted by Charles Burney in the 1960s. This paper considers aspects of the Achaemenid-era occupation, including an addition to previously published accounts of the pottery. The date of the defensive ditch around the summit of the mound is discussed and a detailed account of the small but massively built structure on the summit of the mound, probably dating to the Partho-Sassanian period, is given together with an attempt at architectural reconstruction.**

Introduction

The purpose of this paper is twofold. The first aim is to add to the published corpus of late Achaemenid pottery from Yanik Tepe,¹ and to correct misidentification of one particular piece by other scholars; the second is to publish as fully as possible the Late Structure excavated on the summit of the mound, together with discussion of its date, architectural form and possible function.

* Summers would like to thank Charles Burney for introducing me to the archaeology of Iran, and for encouragement to study and publish the material from his excavations at Yanik Tepe. Staff at all of the institutions in England where material from Yanik Tepe is now housed have been most gracious with their time, help and encouragement: Bryan Sitch, Deputy Head of Collections and Curator of Archaeology as well as Conservators Irit Narkiss and Susan Martin, at the Manchester Museum; Paul Collins at the Ashmolean Museum, Oxford; Adam Jaffer, Curator at Birmingham Museums; Imogen Gun, Collections Manager, Museum of Archaeology and Anthropology, the University of Cambridge; Marion Servat-Fredericq, Project Assistant Curator, National Museums Liverpool; and Ian Carroll, Collections Manager, Institute of Archaeology, University College London. The excavation photographs were scanned by Abby Robinson at the British Institute at Ankara in 2008 through a grant for that purpose obtained by the late Antonio Sagona. This paper benefited from comments by an anonymous referee, and particularly from assiduous reading by Lori Khatchadourian. Abby Robinson at Melbourne has exercised her editorial skills as well as providing encouragement. Finally, I must thank Françoise Summers for assistance with photography and cataloguing material in Manchester and Liverpool, invaluable discussion of the Late Structure architecture and construction materials, unstinting help in the preparation of illustrations, and her unstinting forbearance. The first section is by Summers, the second part by Summers and Çinici with architectural drawing by Çinici.

¹ Summers and Burney 2012.



Fig. 1. Google Earth image showing the northern end of the Urmia basin with Yanik Tepe and Haftavan Tepe, both excavated by Charles Burney.

Excavations at Yanik Tepe, located in the northeastern corner of the Urmia basin, northwestern Iran (Fig. 1), were conducted by Charles Burney over three seasons between 1960 and 1962.² While the main focus of the fieldwork was the Early Trans-Caucasian (ETC) period, additional work included limited investigation of Late Neolithic occupation, and exposure of a portion of a Late Chalcolithic settlement, part of an early Iron Age cemetery,³ a series of late Iron Age pits,⁴ and a late, probably Partho-Sassanian, building on the mound top.⁵ At the end of each excavation season there was a division of objects made by drawing lots. Back at Manchester, Charles Burney then selected objects for donation to museums that had provided financial support to the expedition. Many sherds, considered to be study material of no financial value, rather than museum objects, were also taken to Manchester, as were a portion of the animal bones and a few soil samples. Following visits to England in 2015 and 2016 related to preparation of the ETC pottery and objects for final publication, it was possible to catalogue the majority of objects and pots now housed in the Manchester Museum, the Birmingham Museum and Art Gallery, the Liverpool Museum, the Ashmolean, and the Cambridge Museum of Archaeology and Anthropology, together with sherds in the collection of the Institute of Archaeology at London. This, to the best of my knowledge, encompasses all of the extant material outside the National Museum of Iran in Tehran.

² Summers 2013 with references.

³ Summers 2018.

⁴ Summers and Burney 2012.

⁵ Burney 1962, pp. 136–137.

Further notes on the Late Achaemenid-period pottery from Yanik Tepe

In the primary publication of the pottery from the late Iron Age pits and related contexts at Yanik Tepe, characterised by what has usefully been called Western Triangle Ware, it was argued that this entire corpus should most probably be dated to the late Achaemenid period. There is reason to accept that assessment in the light of more recent excavations and research. The distribution of this distinctive pottery includes the Urmia Basin in northwest Iran, the southern Caucasus and the eastern highlands of Turkey as far to the west as Erzincan.⁶ Nevertheless, the largest published corpus of Western Triangle Ware, together with other contemporary pottery from the same pits, is that from Yanik Tepe. The examples illustrated by Khatchadourian from Georgia and particularly from Armenia appear to be generally more carefully painted than the Yanik pieces, and Armenian archaeologists are doubtless correct in dating some of it to the Hellenistic period. Much material has been usefully gathered together, well-illustrated in colour, in a recent book by Ş. Dönmez.⁷ His idea, however, that Western Triangle Ware had its origins in earlier Iron Age periods in Central Anatolia is without foundation, while his broader conclusions should be approached only with the utmost caution and critical evaluation. A recent exhaustive study by Lori Khatchadourian demonstrates, should demonstration have been necessary, that the carinated bowls and jugs with vertical spouts found at Yanik Tepe and elsewhere in northwest Iran are a local development of a longer tradition in Iranian Iron Age pottery, one that continued to develop into the Parthian period.⁸ A closely related, but partially distinct, genre of Achaemenid-period pattern-painted pottery has been found on a number of sites in the course of recent rescue excavations in the Ilisu Dam region area of south eastern Turkey.⁹ The Ilisu material includes triangular designs on carinated bowls and pilgrim flasks painted in rather a slapdash manner strongly reminiscent of Western Triangle Ware. While these vessels would be at home in western Iran, both the shapes of the larger jars and jugs and their patterning are perhaps somewhat closer to 'Classic Triangle Ware', which seems to be distributed further to the south than Western Triangle Ware.¹⁰ No Western Triangle Ware was found at either Tille Höyük or Hacı Nebi Höyük on the Euphrates, nor, to the best of my knowledge, from anywhere else in the area flooded by the Atatürk Dam. Meanwhile, the date of Tille Höyük level X is not certainly Achaemenid rather than Median,¹¹ and a pre-Achaemenid date might find reinforcement in the results of excavations in the Ilisu Dam area when they become fully available. There was undoubtedly an Early Hellenistic settlement at Tille, while at Hacı Nebi Höyük both Achaemenid and Early Hellenistic

⁶ Summers 1993, with references to earlier studies. For Georgia, from which there is a large published corpus, and Armenia see now Khatchadourian 2018, which includes colour photographs of some pieces now in the Manchester Museum taken by the present author. Recent studies in Turkey include Akarsu and Afshari 2019; Işıklı and Özdemir 2019; Işıklı and Parlütü 2019; Konyar 2018; Özdemir 2019; Özdemir and Altunkaynak 2019, Özfirat 2019a; 2019b; Yılmaz and Karaosmanoğlu 2019.

⁷ Dönmez 2016.

⁸ Other studies of Achaemenid and related ceramics with relevance to the Yanik Tepe corpus include: Adachi 1979; 2005; Dusingber 1999; Haerinck 1978; 1980; 1983; Ingraham and Summers 1979.

⁹ Erim Özdoğan and Gündüzalp 2018, pp. 215–216, 232 fig. 15; Genç 2018, pp. 176, 193 fig. 22; Pulhan and Blaylock 2018, p. 142, p. 157 fig. 16, p. 158 figs 17 and 18.

¹⁰ Kroll 2000.

¹¹ Blaylock and Summers 2014.

levels were well attested.¹² It would therefore seem that the manufacture of Achaemenid-period pottery in any of the Triangle Styles did not extend to the west of the Tigris basin.

A Late Achaemenid pattern-painted vessel

In the second interim report on his excavations at Yanik Tepe Charles Burney published drawings, reproduced here as **Figure 2**, of the lower portion of a unique painted hemispherical pot with a slightly pointed base, registration number YT 210.¹³ The piece is now curated in the Manchester Museum, registration 1964.32. On page 146 we read

the lower part of one small pot; and evidently, from the impression on the inside of the same pattern, it was fired in a stack. This is wheel-made, and clearly not of local origin.

While the catalogue entry on page 151, opposite the drawing, reads:

Level L 3 (Room 3): fragment from the lower part of a bowl; red ware, wheel-made; inside plain; outside decorated in matt brown paint, with a light yellow slip on the upper part.

My own notes from first-hand examination of this piece in the Manchester Museum do not mention a slip, and no slip can be made out on the photographs (**Fig. 3**). My catalogue made in the Manchester Museum provides the following information:

Closed vessel, demonstrated by the prominent internal ridges from throwing on a fast wheel, with pointed base; pale red ware, fine grit temper, plain interior with ghost of running decoration like that on the exterior. Exterior smoothed, below the ‘carination’ plain pale red, above plain buff — the result of firing techniques. Some white grits have spalled on the surface. Decoration in matt black paint.

While the shape is a closed one, the rim diameter can only have been a little less than the diameter at the carination to permit stacking. The ghost pattern seen on the interior indicates that vessels were stacked before the paint was fully dry, while colour differences of the external surfaces probably result from stacking in the kiln. All of the features described above — fast wheel, colour, temper and spalling — are characteristic of the late Achaemenid corpus from Yanik Tepe that were products of an industrial workshop. The intricacy of the painted patterning is exceptional, but even that, while not as slapdash as other pieces in the assemblage, is not executed with great care. It seems indisputable that this lower portion of a pot fully belongs within the corpus of late Achaemenid Western Triangle Ware from Yanik Tepe. Two Western Triangle Ware sherds from jars bearing similar bichrome lozenges, but lacking the hatched and dot lozenge fills, have been published from Hasanlu II/IIIA, dated to late Achaemenid/early Hellenistic times.¹⁴

I have no explanations as to why Charles Burney himself did not make the connection between this wheel-made piece and the pottery of similar manufacture, ware and patterning from the pits whose material he published in the same interim report as the bowl discussed here.¹⁵ It can only be assumed that exuberant confidence in the locus, Trench L, Room 3, level 3, which was certainly

¹² Stein *et al.* 1997.

¹³ Burney 1962.

¹⁴ Dyson 1999, fig. 5(b-c).

¹⁵ Burney 1964.

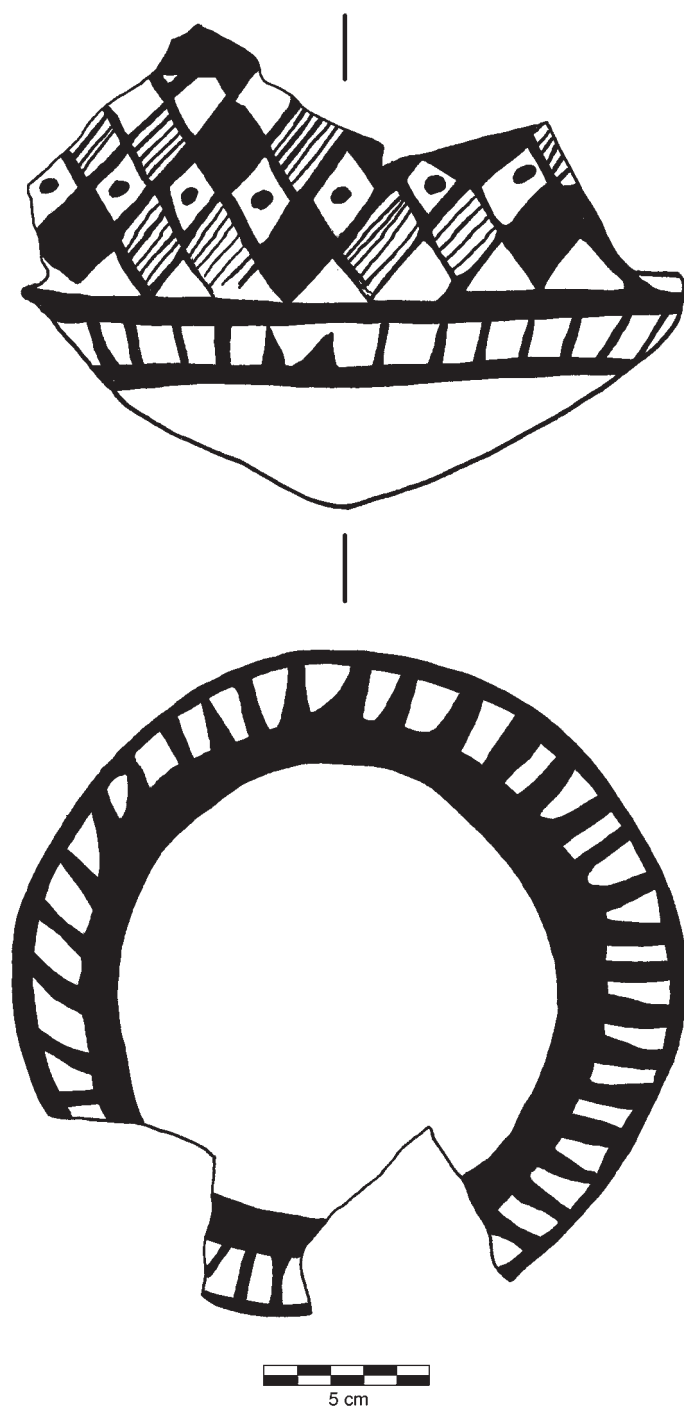


Fig. 2. YT 210, re-inked from the original pencil drawing by the author.



Fig. 3. YT 210, photographed by the author.

ETC III, was overriding in his attribution of the piece to the ETC III period. At the same time, the comparative elaborateness of the design was perhaps misleading.

Examination of the plans and photographs (Figs 4–6) reveal that only a sliver of Room 3 fell within the confines of the trench. Furthermore, as the plan from the interim report depicts, the northeast side of the trench coincidental with Room 3 was over-excavated and/or had collapsed. Given a combination of confined excavated space within the room, the fact that some of the late Achaemenid pits were bell-shaped, and the fast method of digging, it would be no surprise whatsoever if the edge of a late Achaemenid intrusion into Room 3, similar to those excavated across the summit of the mound, had gone unrecognised, with potentially misleading consequences.

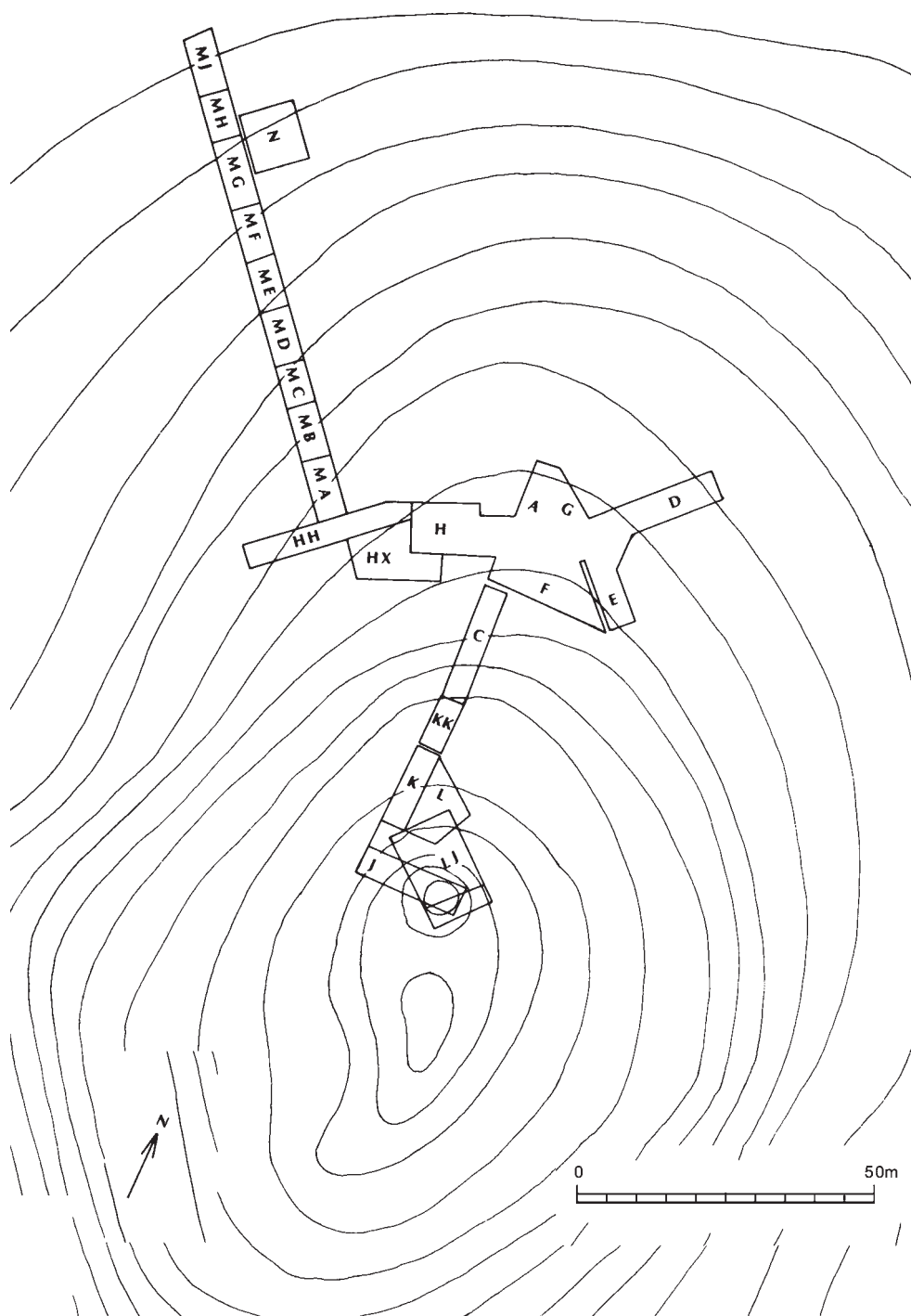


Fig. 4. Contour plan of the mound at Yanik Tepe showing the trenches, after Summers 2013, p. 10 fig. 7.

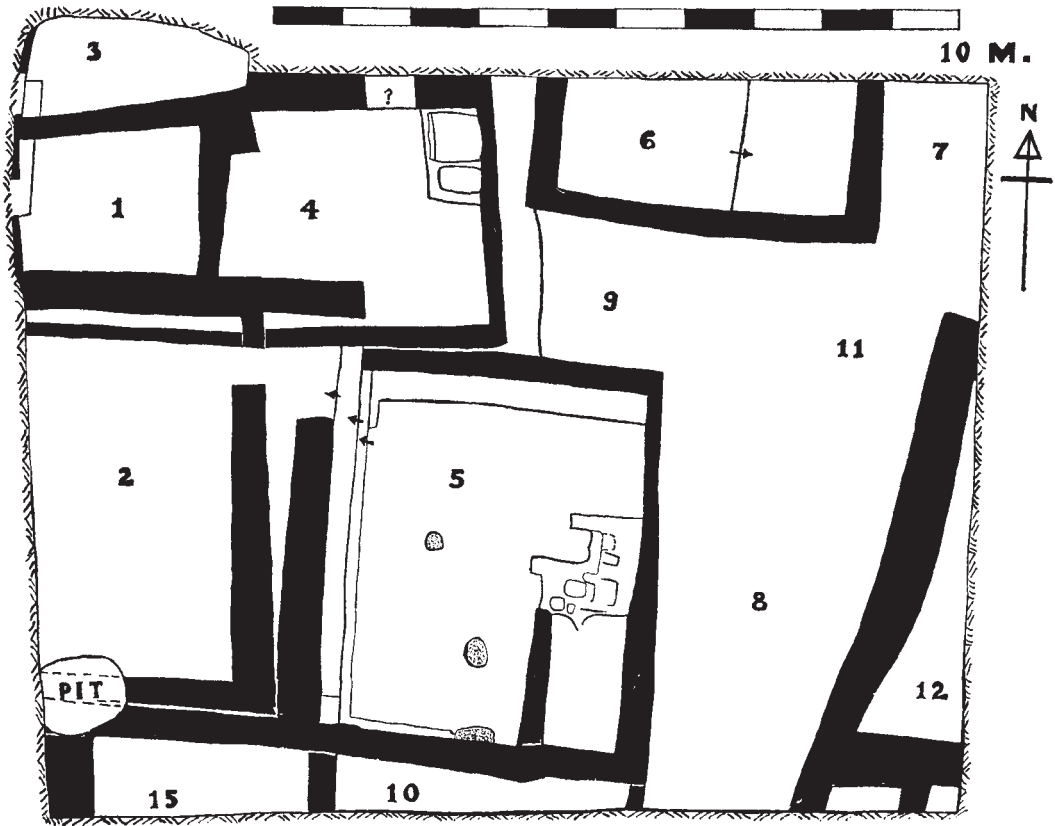


Fig. 5. The plan of Trench L with Room 3 at top left, from Burney 1962.

Stephan Kroll, in two articles,¹⁶ proposed to identify our bowl with Hasan Ali Ware, a genre of Early Bronze Age painted pottery first identified by Sir Aurel Stein. I myself uncritically accepted this identification before having an opportunity to examine the vessel itself at first hand.¹⁷ However, as the discussion above demonstrates, this identification is false and, therefore, the proposals concerning settlement patterns that Kroll drew on the basis of his idea about this single sherd can be discounted.

The second misidentification was by Michael Edwards who compared the diamond design with Middle Bronze Age Haftavan Late VIB 'Urmia Ware'.¹⁸ The ware of the vessel in question, however, is completely different to that of Haftavan IVB, which was made on a slower wheel, is much thicker, and was fired at a lower temperature. In this comparison, no mention is made of Burney's accurate description of the ghost pattern on the inside of the vessel that demonstrates the bowl form, as well as the stacking of similarly patterned vessels. Had Edwards been able

¹⁶ Kroll 2004; 2005.

¹⁷ Summers 2014, p. 165.

¹⁸ Edwards 1986, pp. 63–64.

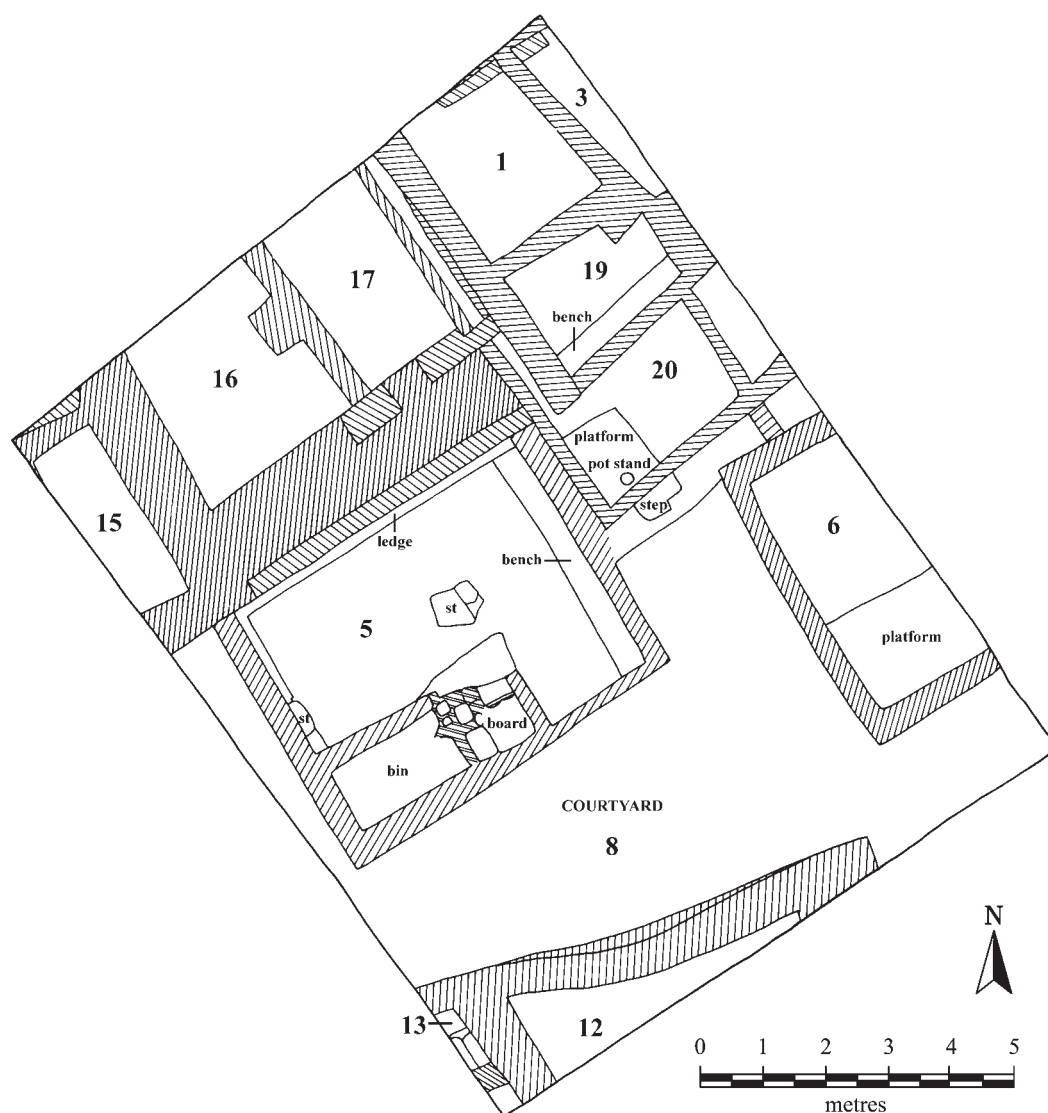


Fig. 6. Trench L 3/2A plan from Summers 2013, p. 141 fig. 132.

to examine the piece at first hand he would have immediately recognised these differences and would not, therefore, have made the erroneous equation. The context, had the identification been correct, would have placed this vessel in the ETC III period of the late third or early second millennium BCE, which led Edwards to suggest that this piece should be seen as a very rare or unique chronological link between the ETC and the Middle Bronze Age of northwestern Iran characterised by 'Urmia Ware'. No subsequent research has confirmed such an overlap between these two ceramic traditions.

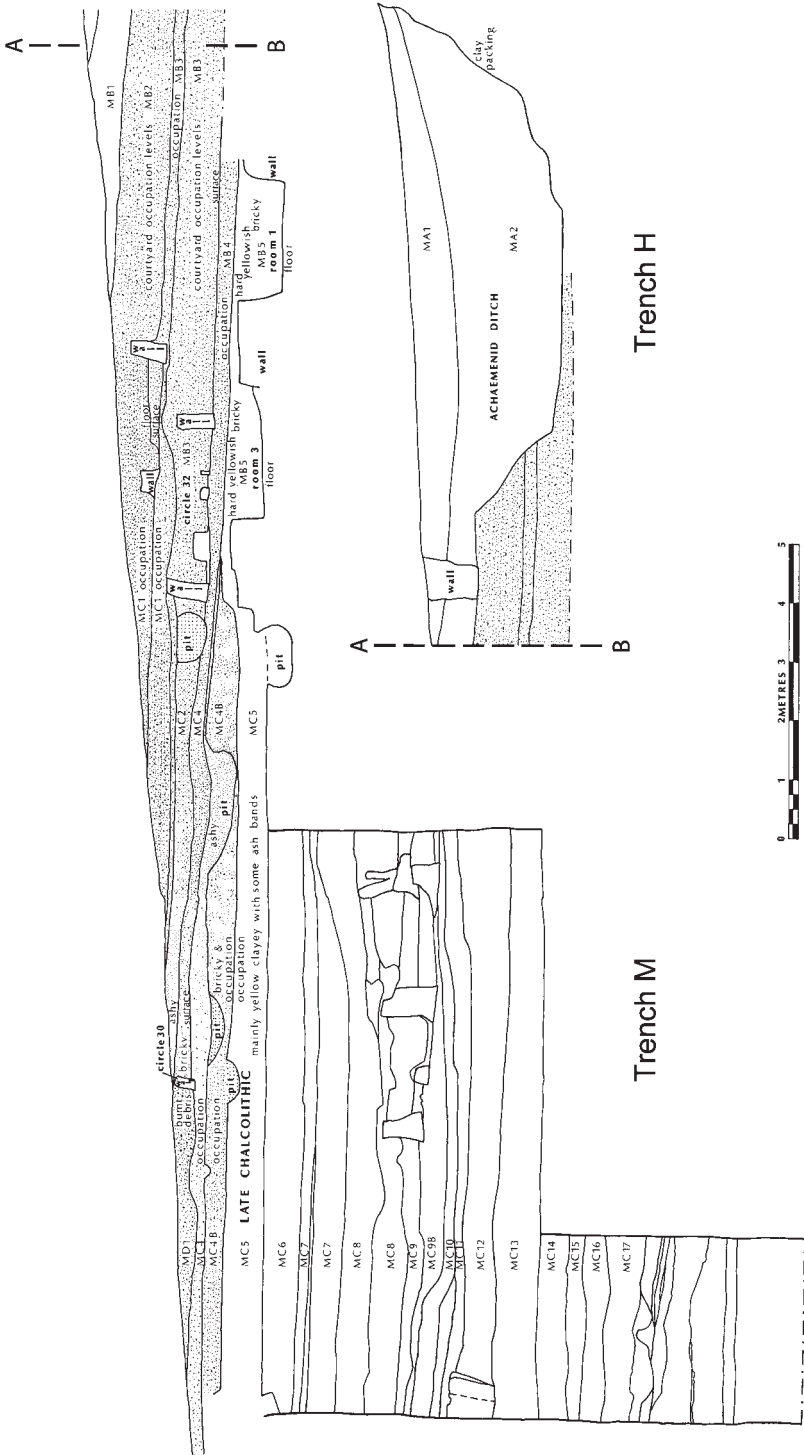


Fig. 7: Northeast section through Trenches M and H showing the 'Achaemenid' ditch and the gentle incline of the mound, adapted from Summers 2013, p. 202 Section 1.

The Yanik Tepe defensive ditch

Some 70 m below the highest point of the mound, in Trench HH, a section was excavated across a large defensive ditch that is credibly assumed to have made a complete circuit at approximately the same contour (Fig. 7). As can be seen from the section drawing, this broad and rather shallow ditch was some 9 m wide and 3 m deep on the upslope side. Charles Burney thought that this ditch must have been associated with the monumental structure on the mound summit (described below), and indeed would have been a quarry for its many thousands of mud bricks. Against this suggestion is the distance between the ditch and the central structure, the likelihood that the mud bricks were made on an industrial scale close to water rather than on the mound, and that the bricks appear to have been made of clean clay rather than mound deposit. The defensive purpose of the ditch, in addition to its sheer size, is underscored by 'a hard thick layer of revetment clay on its inner face.'¹⁹ The fill, as the section drawing shows, was undifferentiated. No diagnostic or datable finds were recovered from either the base of the ditch or its fill. It is not impossible that a mudbrick defensive wall once stood above the ditch, separated from it by a berm. While no trace of any such wall was found in Trench HX, a combination of the scale of mudbrick robbing and erosion seen on the mound summit makes it possible that such a wall once existed. The ditch by itself would hardly have provided effective defence.

Turning now to the date of the ditch, there is no direct evidence. Burney, in an unpublished typescript as well as in conversation, has drawn a parallel with the Achaemenid, Period II, ditch at Haftavan Tepe that enclosed towered defences. If the Yanik Tepe ditch (and perhaps an associated wall) do belong in the Achaemenid era, they would have enclosed whatever structures were associated with the truncated pits from which, as we have seen above, a quantity of late Achaemenid pottery, both pattern-painted and plain, was recovered. This possibility envisages a more substantial Achaemenid-period settlement, replete with defences, than has survived levelling of the summit in the subsequent period. Certainly the summit was levelled, and whatever Achaemenid-period structures may have been associated with the truncated pits filled with late Achaemenid pottery were swept away. The alternative possibility is that the ditch was post Achaemenid in date, presumably with a wall close above it, dug to protect large central structure to which we now turn.

The Late Structure on the summit of the mound

Description of the Late Structure

This building occupied the summit of the mound that was levelled for its construction. As noted above, this levelling truncated pits containing late Achaemenid-period pottery and removed any structures that might have been associated with them. The plan (Figs 8 and 9) comprises an almost square building, measuring approximately 25.6 by 27 m and covering an area of c. 690 m². The inner core of the building is likewise nearly square, measuring approximately 13 by 14.4 m and covering an area of c. 190 m². In terms of proportions, the outer walls are almost twice the length of the inner walls: 27 and 14.4 m on the slightly longer side, 25.6 and 13 m on the other. The broad passage

¹⁹ Letter to the author from Charles Burney, 27 April 2007.

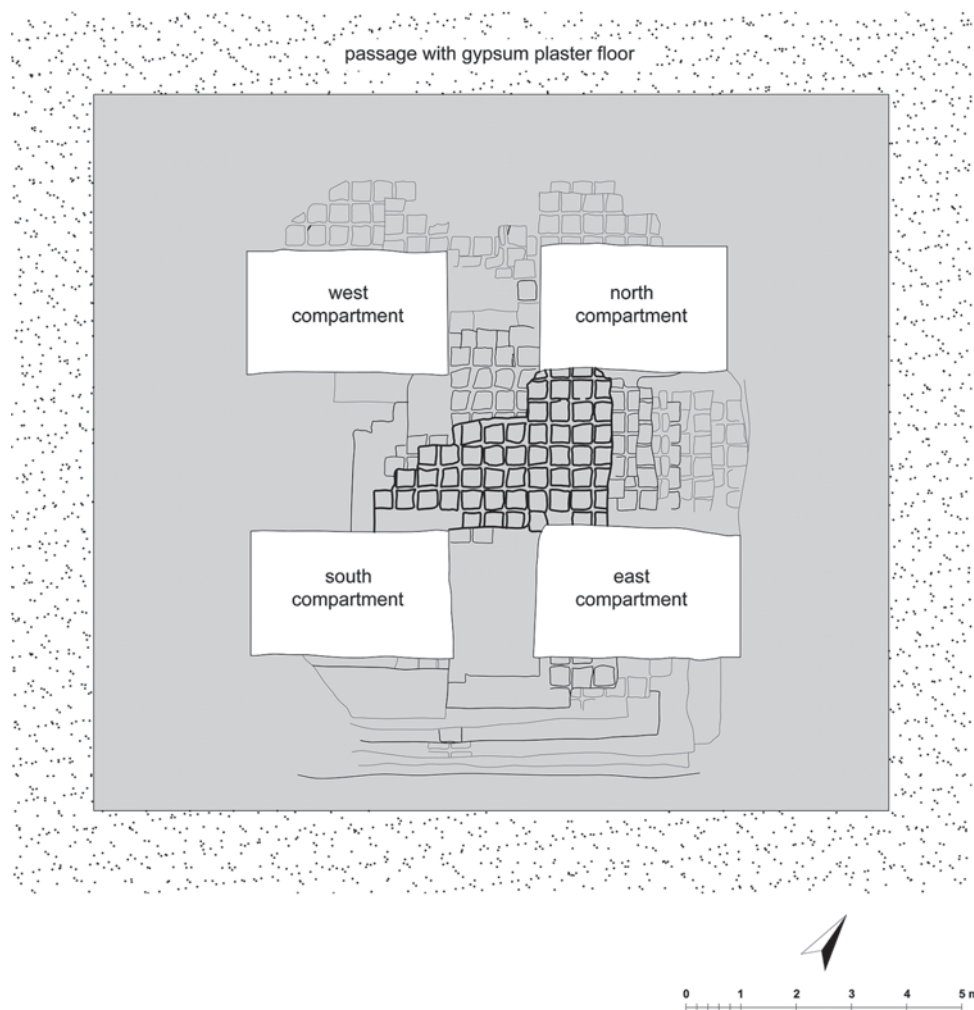


Fig. 8. Plan of the Late Structure at a scale of 1:100, drawn by Ahmet Çinici after the sketch made by Peter Warburton dated 18 August 1960.

around all four sides between the outer walls and the core is 3.5 m wide and was provided with a thick white gypsum plaster floor (Figs 10, 11 and 14). The inner part of the building was divided into four equal compartments by a northeast–southwest cross wall that was the same 2.8 m width as all the other walls of the building and a northwest–southeast cross wall which, at 1.6 m wide, was about half the width. As a result of one cross wall being narrower, the four compartments are not quite square, each measuring approximately 3.6 by 2.3 m, with areas of about 8.3 m². The earth surfaces of these doorless compartments were preserved (Figs 11 and 13).

The walls were constructed in foundation trenches 2.9 to 3 m wide, into which anything from a single layer to a depth of some 0.40 m of angular stones were thrown. These foundations carried walling of square mud bricks, on average 35 × 35 cm but often as large as 40 × 40 cm, always

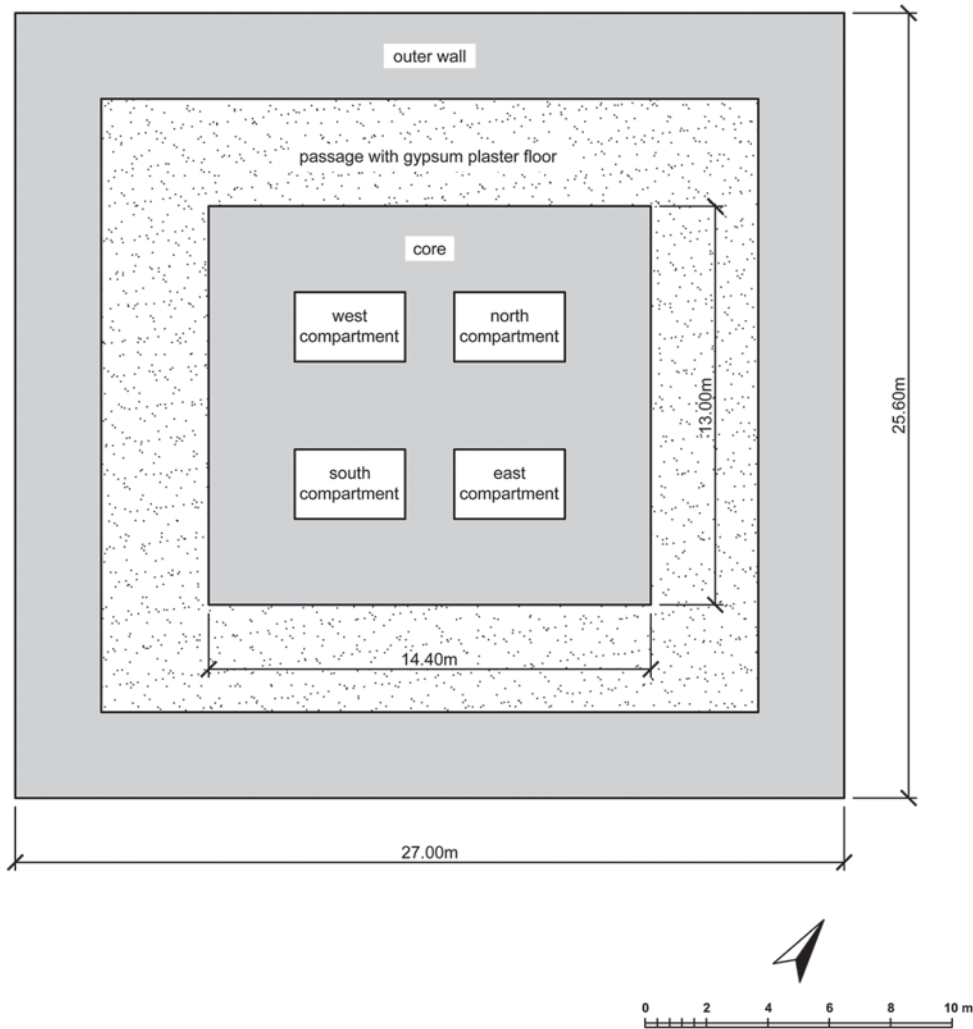


Fig. 9. Reconstructed block plan of the Late Structure at a scale of 1:200, drawn by Ahmet Çinici.

12 cm thick, that were carefully bonded with half bricks for facing alternate courses (Fig. 13), set in mud mortar that was on average 5 cm thick.²⁰ As much as 2 m of mudbrick walling was constructed in the foundation trenches, below the level of the ground and internal floors. Much of the mud brick was found to have been robbed out for use elsewhere. The date of this robbing was not ascertained, but it was sufficiently far back in time for the robber trenches to have filled with soft dusty soil (Figs 11 and 12).

²⁰ This account is in part based on an unpublished and undated typescript written by Charles Burney, and otherwise on what can be gleaned from the plans and photographs.

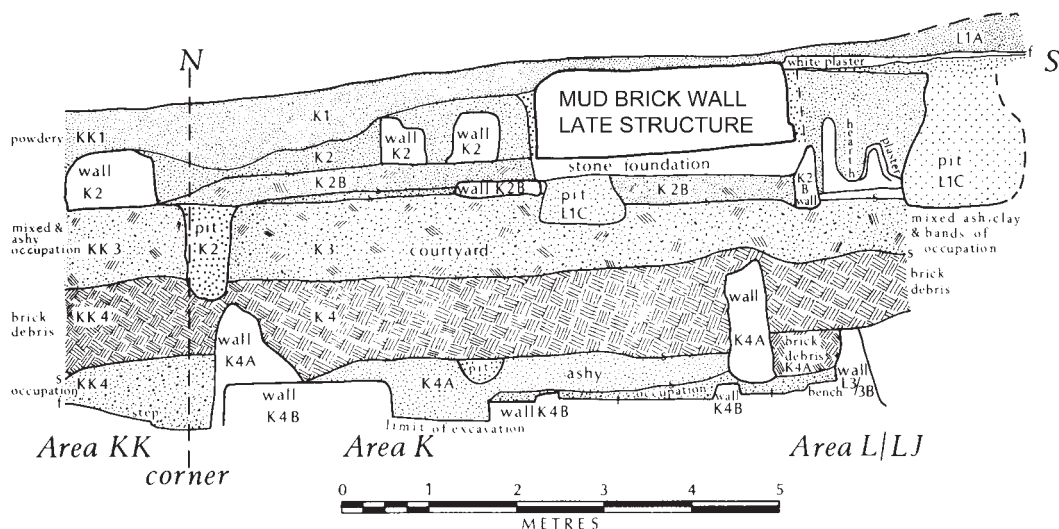


Fig. 10. The east section of Trench K, showing the stone foundations and mudbrick superstructure of the outer wall of the Late Structure, with the white gypsum plaster floor to the right, truncating Achaemenid-period pits labelled L1C. After Summers 2013, p. 211 section 9.



Fig. 11. Looking north during the course of excavation before the bottom of the Late Structure walls and stone foundations had been exposed and the robber trench in the foreground emptied. The broad wall running diagonally across the centre of the photograph is the central wall of the core, with the northwest and southeast inner spaces to either side and the narrower perpendicular cross wall at centre left. The outer wall of the building runs across the middle distance, with Trench K behind. The less substantial walls and features between the outer wall and the northwest wall of the core are the topmost preserved ETC levels into which the foundations of the Late Structure had been dug. The gypsum plaster floor that ran over and sealed these structures as well as the Achaemenid-period pits has been removed.



Fig. 12. Taken from the same standpoint as Figure 17, this photograph shows the excavation at the stage where the base of the robber trench of southwest wall of the core structure had been reached.



Fig. 13. Peter Warburton, who drew the plan of the Late Structure, stands in the southwestern inner space looking at the broad cross wall, the base of which has not been reached. In this photograph some of the 5 cm-thick mud mortar has been removed in order to articulate the mudbrick bonding pattern, with half bricks on the edges of alternate courses.



Fig. 14. Peter Warburton leans on the foundations of northwest wall of the Late Structure with the topmost ETC features in front of him. The thick white gypsum plaster floor of the surrounding corridor that sealed the ETC and ran up against the faces of the Late Structure walls has been removed, but it can be clearly seen in the trench edge in the middle distance at right.

With regard to the plan, orientation was approximately northeast–southwest, with the result that the corners approximate to the cardinal points. No entrance into the building was revealed, but the exterior wall was only exposed over a very short stretch in Trench K. It is certain that at the level of the gypsum plaster floor there were no doorways into the inner part of the building from the surrounding corridor. Nor were there any connecting doorways between the four compartments in the core of the building. These compartments, then, would seem to have been voids beneath a raised central platform.

Warburton's 'plan' and reconstructing the unknown

The drawing marked “Excavations in trench J. — 18th August 1960 — Peter W.” (W for Warburton) is the main record of the archaeological excavation of the Late Structure on the summit of the mound. This is a ‘plan’ of the trench, drawn in pencil, on which a few overall measurements are written. It turned out from the very early stages of our work that Warburton’s ‘plan’ was not a plan drawn to scale; rather, it was a site sketch with notes obviously meant to facilitate a later drawing, which seems to have never been made. Nevertheless, it is noteworthy that individual mud bricks were depicted in reasonable detail, while the drawing as a whole reflected the impressive visual character of the archaeological evidence. Our aim, therefore, was to preserve the character of the original sketch while translating it into a scaled plan. It was crucial to interpret Warburton’s original sketch in conjunction with Burney’s site notes and available photographs to make the

resulting scaled plan accurate and, at the same time, reflective of the nuances contained in the sketch.

The first step was to digitise the original sketch as it was (that is, to trace the lines on the sketch in CAD), without any corrections or modifications. The overall dimensions recorded on the original sketch were used in drawing the outline of the structure. Next, a 40×40 cm grid (to represent 35×35 cm mud bricks with 5 cm joints as recorded in Burney's notes) was laid over the digitised sketch so as to achieve an optimum fit between the grid and the outline of the structure. Finally, the mud bricks as digitised from the sketch were redistributed to fit into the grid. Where necessary, the size of mud bricks was adjusted to fit into the grid by scaling, rather than modifying the original lines, in order to preserve their character. Introduction of new lines and modification of the original lines, apart from scaling, was minimal and avoided unless essential. The resulting scaled plan (Fig. 8) is reasonably accurate at a scale of 1 to 100 while still preserving the traits of Warburton's original sketch.

This plan has proved indispensable in the discussions about the possible functions and the superstructure of the building. A 3D reconstruction of what the building might have looked like has been attempted in order to explore several hypotheses discussed in this article. With little evidence for the superstructure of the building, the reconstruction is inevitably speculative. The 3D reconstruction and the sections generated from the 3D model are intended as part of the archaeological reasoning/hypothesis-testing process rather than as the presentation of a complete set of evidence (Figs 15–20). The 3D model has been kept simple, with minimal rendering, textures and colour. The purpose is to discuss the mass and proportions of the structure and give an indication of its scale. Hyper-reality has not been attempted.

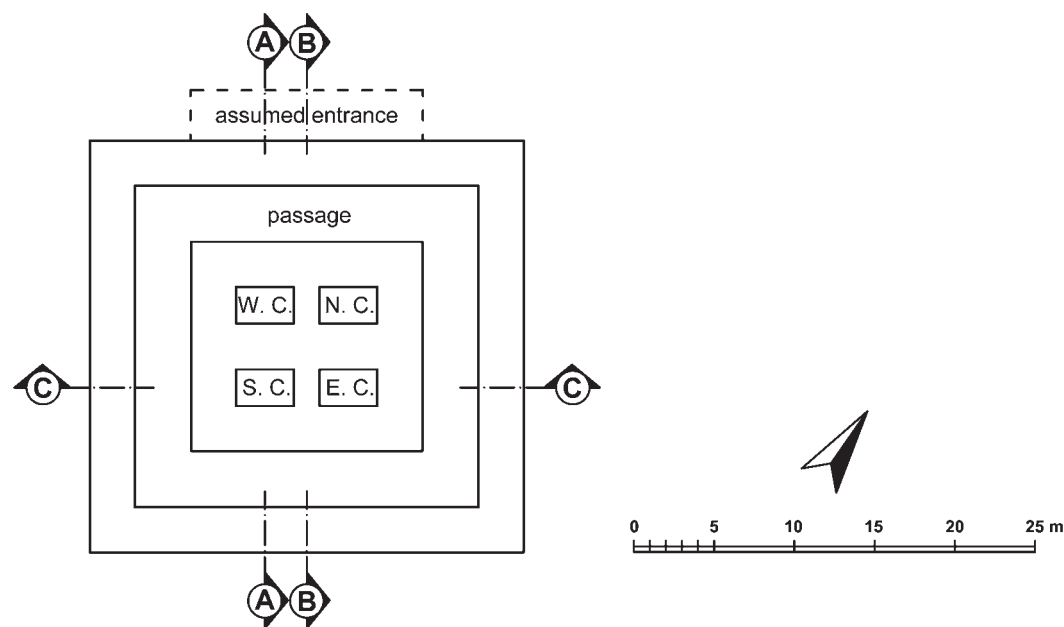


Fig. 15. Key plan for architectural sections.

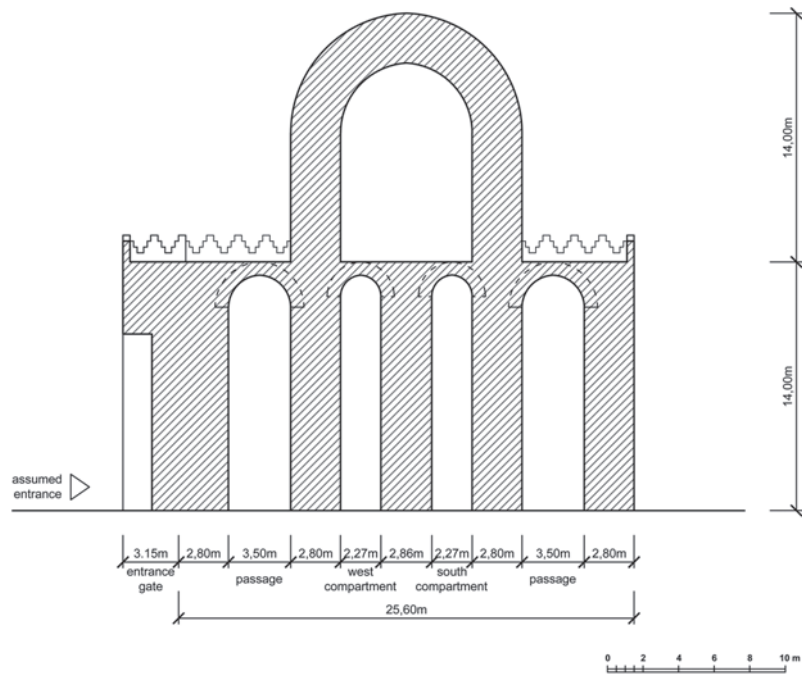


Fig. 16. Reconstructed architectural section AA by Ahmet Çinici at a scale of 1:250.

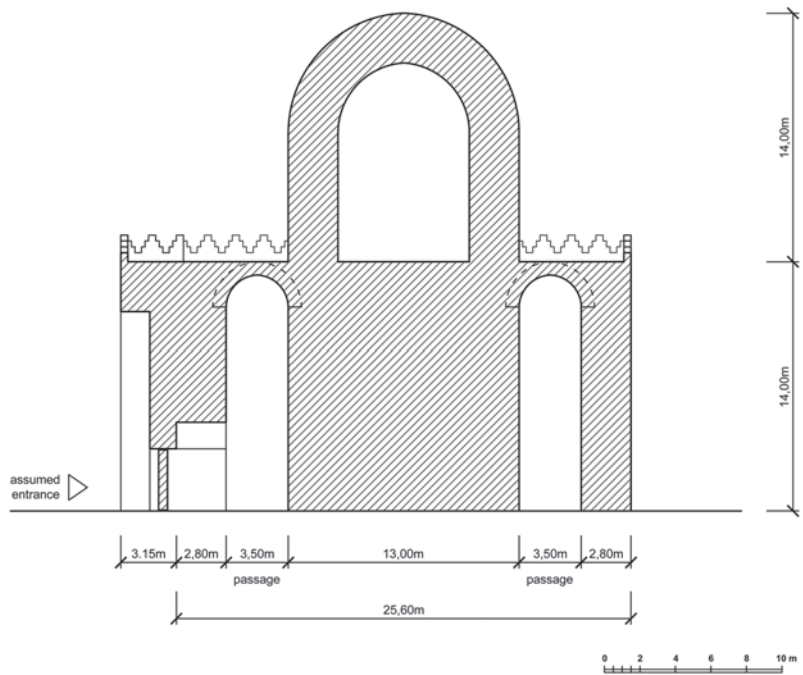


Fig. 17. Reconstructed architectural section BB by Ahmet Çinici at a scale of 1:250.

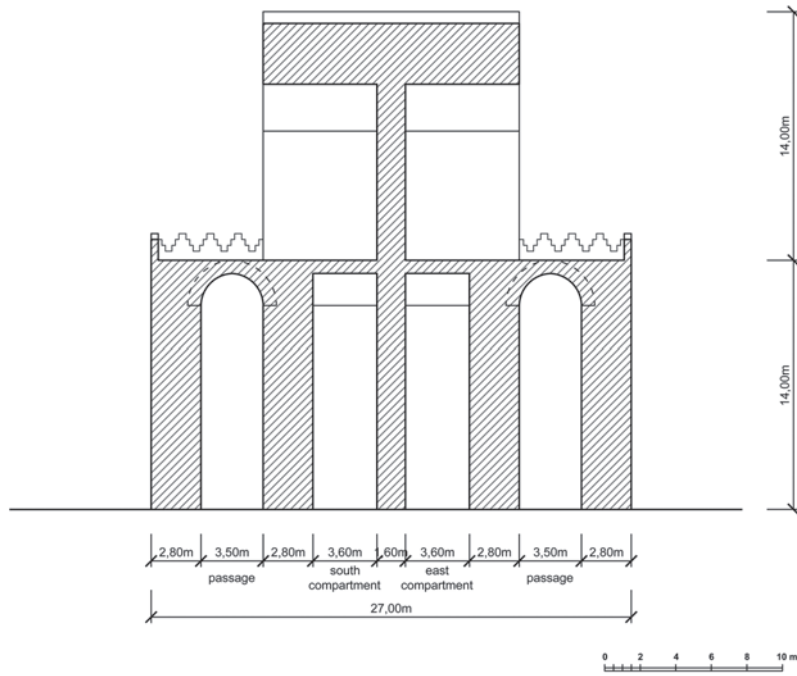


Fig. 18. Reconstructed architectural section CC by Ahmet Çinici at a scale of 1:250.

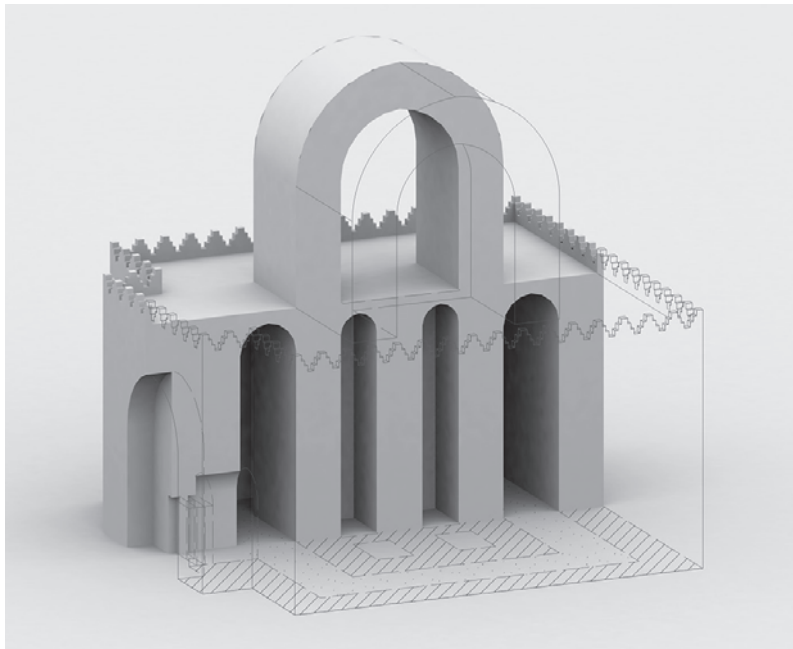


Fig. 19. 3-D architectural cutaway model by Ahmet Çinici.

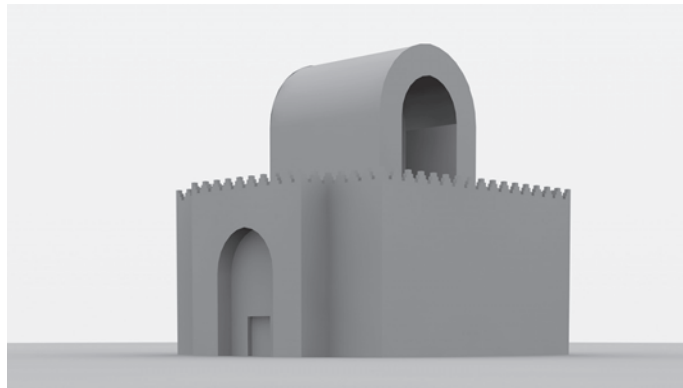
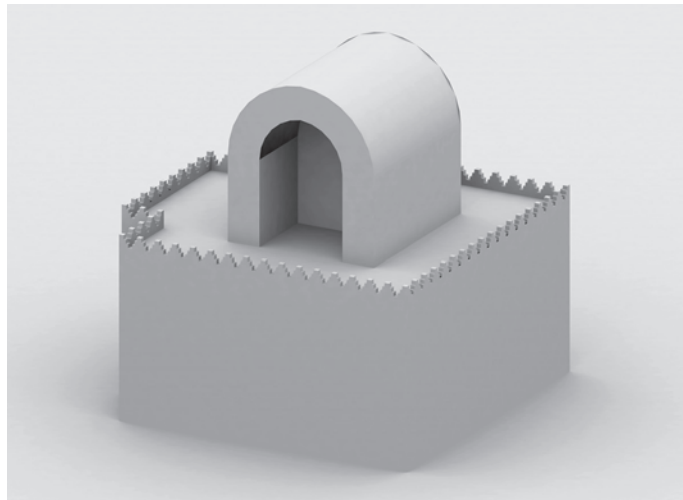
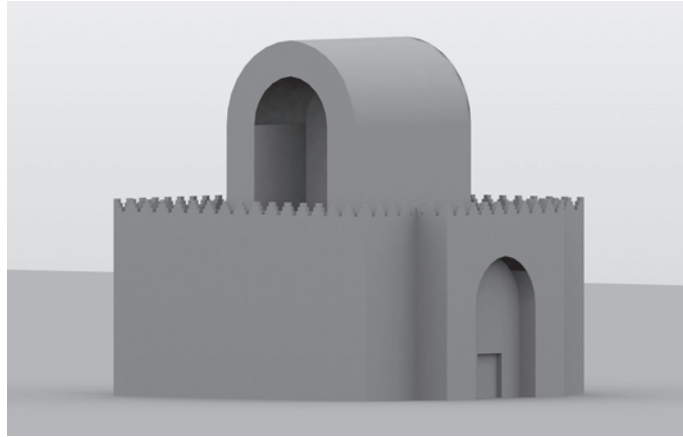


Fig. 20. 3-D architectural models by Ahmet Çinici.

The reconstruction relies on two sets of data: architectural implications of the archaeological evidence (that is, the plan) and the general architectural characteristics of the period, broadly defined as from Achaemenid to Sassanian. The plan makes it strikingly clear that the Late Structure was a centrally planned building comprising a solid core with a peripheral surround. The thickness of the walls, at 2.8 m, would have been sufficient to support barrel vaulting, the standard architectural element of the period for spanning large openings, which would have covered the passage between the solid core and the peripheral wall. Compartments within the core, in the absence of any trace of access, are interpreted as voids to reduce the bulk of the core; these would also have been provided with barrel-vaulted ceilings.

The advantages of barrel vaulting were threefold. Firstly, it proved an efficient way of spanning long distances in a geography where suitable trees were scarce. The builders of the region had been experimenting and had already mastered the use of barrel vaults by the time the Late Structure was built. Secondly, it was relatively easy to achieve a flat and structurally sound surface above the vault to be used as the floor of a terrace or upper storey. Finally, a barrel-vaulted corridor would have provided structural support against the outward thrust of a vaulted superstructure of a potential upper storey.

The strength of the walls would have been sufficient to support a second, and maybe more, storeys. It is architecturally and structurally sensible to reflect the core and periphery layout of the ground floor in the upper floor. Therefore, the core on the upper floor has been reconstructed as a large, central, roofed space forming the main focus of the structure, and the peripheral wall has been reconstructed as a lower parapet wall, narrower than the width of the wall on the ground floor. Whether the roof of the large, central space on the upper floor was a dome or vault is open to debate. It has been envisaged that a series of barrel vaults from north to south spanned the 2.8 m-wide walls on the ground floor and provided a structurally solid base for the upper floor. It is then reasonable to project the 1.6 m wide cross wall of the core on the ground floor to the upper floor to divide the main central space, in which case a vault becomes the architecturally sensible way to roof this double space; that is, two vaulted halls (*ayvans*) back to back. Whether these two vaulted halls were connected via a door or an opening in the cross wall separating them cannot be known without further evidence.

The shape and proportions of the vaults in the reconstruction are based on the main vault (*ayvan*) at the Palace of Ardashir at Firuzabad.²¹ The vertical dimensions are based on the proportions of the Zendan-i Suleiman at Pasargadae.²² The choice of location for the entrance is purely arbitrary, and its shape is hypothetical, based on the gate of Sar Yazd Fortress.²³

Stepped crenellations are one of the major architectural features of symbolic significance from the Achaemenid period onwards; as reconstructed here, they match the symbolic significance manifested by the scale of the structure. The dimensions of the crenellations in the reconstruction are based on the size of the mud bricks used in the building: three steps of three, two and one mud bricks wide by one mud brick deep; that is, 1.20 m, 0.80 m and 0.40 m wide by 0.40 m deep. Each step is two mud brick courses high; that is, 0.34 m.

²¹ Varza 2020.

²² Stronach 1978.

²³ Afsar 1970.

Omitted in the reconstruction is access to the upper floor(s). Whether this was via a set of timber stairs or a mudbrick structure, most probably somewhere along the passage with gypsum plaster floor, is impossible to know in the absence of further evidence or close architectural parallels. Other possibilities include an external mudbrick staircase, possibly resembling the stone example at the Zendani-Sulaiman, or stairs within a larger entrance porch than suggested on the reconstruction.

Date of the Late Structure

Before discussing possibilities concerning the function of the Late Structure in the light of its architectural reconstruction it may be helpful to examine the evidence for its date. Charles Burney vacillated between his original published suggestion that it was Sassanian in date, on the one hand,²⁴ and comments in an unpublished manuscript that it might be Achaemenid, on the other. The latter opinion was based on close similarities between the Yanik Tepe ditch and an Achaemenid-period ditch that he excavated in Level II at Haftavan Tepe. An additional factor in his thinking was the absence at Yanik Tepe of Sassanian-period finds of the kind that were abundant at Haftavan. In a 2007 letter, however, Burney reverted to a Sasanian date for the Yanik Tepe building. Let us now turn to the archaeological evidence from Yanik Tepe itself. Firstly, there were no associated finds or ceramics but, as we have seen, the Structure truncated and sealed a number of pits that contained much distinctive pottery that is dated to the late Achaemenid period. Secondly, to the best of my knowledge, the use of gypsum plaster for the floor indicates a post Achaemenid date. While the use of gypsum plaster has a long history, its employment for thick floors of this kind is typical of the Sassanian period.²⁵

Form and purpose of the Late Structure

The massiveness of the building indubitably attests to some public function. There are several possibilities, and in deciding between them account has to be taken of the architectural form. Both the width of the walls and the solidity of the foundations were surely designed to bear the heavy load of mudbrick vaulting. The presence of the gypsum plaster floor, which would have been dissolved by rain, surely demonstrates that the entire building was roofed. If the inner core was a double cube as, for instance, at the Zendan-i Sulaiman at Pasargadae, it would have attained a height, at 28 m, approximately equal to the exterior sides. The surrounding corridor and outer walls could then be reconstructed with an elevation equal to the length of the core, at 14 m. Thus it is possible that core would have stood 14 m above the surrounding elevated terrace. In that case, the terrace would most probably have been provided with a parapet wall, possibly embellished with stepped crenellations.

The thickness of the walls and the depth of the foundations, together with their stone base, are best explained by the need to support barrel vaulting over the surrounding corridor and perhaps a cross-barrel or domed covering over the core of the building. At 3.5 m, the width of the

²⁴ Burney 1962, p. 149.

²⁵ See the comment by Huff 1986/2011 section d. For gypsum plaster in Iran, see Blair 2000 and Huff 2002.

surrounding corridor is compatible with barrel vaulting. It seems highly probable that the four basement rooms were also barrel vaulted and without access, in which case they would have been part of a substructure beneath the elevated core of the building. Such mudbrick vaulting is to be expected in both Parthian and Sassanian buildings.²⁶

It is impossible to know whether the upper floor or floors of the core were entered directly by a flight of mudbrick stairs or, less plausibly, a wooden staircase. Nor is it known whether access to upper floors was from within the surrounding corridor or from the roof or an upper floor of the surrounding structure. In any case, there must surely have been stairs, very possibly at the unlocated entrance to the building.

Focusing now on possible functions of this isolated building with no associated settlement, options include: cultic, military and funerary. To begin with the cultic, Charles Burney wrote in the unpublished typescript from which we have already quoted:

To speak of a fire temple is to prejudge this problem, with no supporting evidence whatsoever. The opinion to that effect of Dr. Nahchevani, a medical man of Tabriz who first drew my attention to the site of Yanik Tepe and who was impressed by the burning visible on parts of the mound before excavations began, is scarcely relevant.

Patches of burning visible on the mound surface, and from which the site takes its name, turned out to be of prehistoric date and could thus be discounted in assessing the possible function of the Late Structure. If there is any credence to be given to the idea that the massively constructed building might have been a fire temple, it would be necessary to reconstruct wide arched entrances in the centre of each of the outer sides, with worshippers circulating round on the gypsum floor observing an elevated flame in the centre of the core. The great width of the walls alone makes this scenario most unlikely, and, from an architectural standpoint, it is extremely difficult to reconstruct the building in such a fashion. No further consideration is therefore required.²⁷

A defensive function for the structure is a far more serious possibility, one that was often assumed in the excavation notes, where the terms 'fort' and 'fortress' were not infrequently employed as a shorthand. In favour of this interpretation is the elevated location, which would have provided a view of the surrounding area from the top of the central tower. Additionally, the massiveness of the walling would be seen as a protective deterrent to attack, while the deep foundations afforded some protection against sapping in addition to their structural, load bearing, importance. In this case, it would surely be necessary to reconstruct an upper floor divided into rooms above the corridor, with three or more stories in the central core, in order to accommodate a small number of men together with supplies. Very little is known about Partho-Sassanian military construction in what is now northwestern Iran.²⁸ Sassanian defences, or what is known of them, seem to have been concentrated along borders and to have included impressive walls. One recent study includes satellite imagery of what appear to be Sassanian forts. They are not completely unlike the structure under consideration,²⁹ but closer examination reveals, in as far as can be determined from the remote imagery, differences of scale and design; in addition, they are elements in a defensive

²⁶ Keal 1986/2011; Huff 1986/2001.

²⁷ The standard work on Iranian fire temples is Schippmann 1971.

²⁸ Ghodrat-Dizaji 2011.

²⁹ Alizadeh 2014.

system. Furthermore, these fortified sites are said to be adjacent to settlements and associated with scatters of sherds on the surface. Against the idea of a defensive function are the clean gypsum plaster floor at ground level, as well as the absence of any pottery or refuse. Furthermore, a group of soldiers garrisoning what would essentially have been a fortified watch tower would have required water and food, the former perhaps stored in pithoi or a plaster-lined reservoir, of which there is no trace. A wider consideration may be that such a tower is unlikely to have been built in isolation, but would rather have been part of some chain of similar structures that has so far gone unrecognised.

The third possibility is some kind of funerary monument, possibly associated with Zoroastrian practices rather than a tomb tower. While no good parallels are known to us, such a function would be compatible with both the Parthian/early Sassanian date suggested above, as well as the lack of pottery and other finds that would be expected if the building was once occupied. The reader might well think that this discussion has already pushed the scant evidence beyond acceptable boundaries. Further research by others will be required to confirm or refute suggestions made above.

Abandonment and robbing

While we do not know what happened to the building, it is located in a zone prone to severe earthquakes.³⁰ It can easily be imagined, therefore, that mudbrick vaulting would have cracked, with the result that the building would have become unsafe and thus been abandoned. While there are no visible earthquake cracks in the extant foundations and collapsed brick vaulting was not found lying on the gypsum plaster floor, it can be assumed that the building was in a ruinous state when it was demolished and the majority of its bricks taken away by the cartload for reuse elsewhere. The robbing appears to have been systematic and organised, with the wall foundation followed into the side of the mound until either requirements had been met or the work had become too arduous. No refuse was recorded that might have given a hint of the date at which this robbing occurred, but Burney's account of his conversations with Dr Nahchevani, quoted above, clearly indicated that it had not taken place in living memory, a conclusion reinforced by the fact that the robber trenches were not visible on the surface at the start of the excavation.

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³⁰ Ambraseys and Melville 1982.

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Shah Tepe/Islam Tepe: an enigmatic site in the Miandoab Plain, Iran

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Abstract

This article describes and discusses an important archaeological site located on the southern side of Lake Orumiyeh, Iran. The site has been little studied and is characterised by a series of highly distinctive rock-cut architectural features generally attributed to the first millennium BCE, such as a rock-cut tunnel and an area that has been interpreted as an ancient quarry. These rock-cut features have been attributed to the Middle Iron Age, to the times of Urartu or Mannea, two of the most important actors in the complex and dynamic political situation during the Iron III in Iran. More recently, a later date has been proposed, perhaps in the Late Iron Age/Iron IV (or indeed later still). This article gives a general analysis of the site, and its possible chronology is also discussed.¹

Keywords: *Shah Tepe, Lake Orumiyeh, rock-cut architecture, rock-cut stepped tunnel, Late Iron Age*

This article concerns a new study of the important archaeological site of Shah Tepe/Islam Tepe,² located in the middle of the Miandoab Plain, in Miandoab County, West Azerbaijan Province, Iran (Fig. 1). The site is reviewed, and its characteristics and its chronology are discussed.³ The site of Shah Tepe is in a very interesting and relatively unexplored area of the Lake Orumiyeh basin, on the road which connects the Ušnaviyeh-Solduz plains with the Zarineh and Simineh river valleys. In the Middle Iron Age, starting from the end of the ninth century BCE, the plain of Miandoab (as well as those of Naqadeh/Solduz and Ušnaviyeh) was an important interface area between the Urartians and the Mannaeans.⁴ Later the area became part of a series of empires, such as the Achaemenid, the Parthian and the Sassanid, of which few traces are recognisable on the ground. The proposed chronology of the Shah Tepe site has changed over the years, from a presumed early Iron Age date to a more recent epoch. The problems involved in dating its architectural features are discussed in this article.

¹ The authors of this article want to thank Stephan Kroll for having shared important and unpublished information. The content of this article has been developed by all the authors; specifically, Behrouz Khanmohammadi wrote 'The site of Islam Tepe/Shah Tepe: history of research', Priscilla Vitolo wrote 'The Pottery', and Roberto Dan wrote 'Description of the Site' and 'The site's chronology'. 'Introduction' and 'conclusion' were written jointly.

² The site is also known as Islam Tepe/اسلام تپه or Šah Tepe/Shah Tappeh/Shah-tepe/شاه تپه.

³ The authors visited the site in 2012 and in 2013, with the agreement of the Islamic Council and the residents of the village, and together with colleagues from the Works Registration Office of the General Directorate of Cultural Heritage, with the aim of registering this historical monument on the National Monuments List.

⁴ Dan 2020a, pp. 55-57.



Fig. 1. Satellite picture of Lake Orumiyeh with the position of Shah Tepe/Islam Tepe site and major local cities.

The site of Islam Tepe/Shah Tepe: history of research

Islam Tepe/Shah Tepe is situated on a natural rock outcrop, which emerges in the middle of the plain and is similar to other rock formations in the area. It is located on the southeastern border of the small village of the same name (Fig. 2), 10 km north-west of Miandoab and about 16 km southeast of the southern shore of Lake Orumiyeh.⁵ The hill looks over the village from a height of about 10 m above the surrounding plain. It is situated in the delta region of the rivers Simineh-Rud and Zarineh-Rud, lying just 1.3 km north of the latter. The former name of the village and the site was Shah Tepe ('hill of the king'), while after the revolution in 1979 it was renamed Islam Tepe.⁶ The site was discovered by Wolfram Kleiss in 1973, at the time of the archaeological excavations in Bastam (1968–1978) which he directed. During a visit by the governor of Khoy to Bastam on 7 August 1973, information concerning the existence of the site was reported; the day after, 8 August, Kleiss⁷ visited it, and a sketch plan was later published (Figs. 3–4). There is no doubt that what immediately struck Kleiss were the remarkable rock-cut features and the rock-cut

⁵ Coordinates: 37° 2'50.95"N 46° 0'59.93"E; elevation: 1305 m a.s.l.

⁶ In a sense, this change of name has partially solved the problem that it was homonymous with the important prehistoric site in the Gorgan Plain.

⁷ Kleiss 1974, p. 103, fig. 26. Archaeological surveys in northwest Iran were led by W. Kleiss from 1967 to 1978. It seems that the southern part of the Lake Orumiyeh basin has been less studied than the northern and western sides, probably due to the interruption of archaeological activities after the revolution.



Fig. 2. Satellite picture of the site and the modern village of Shah Tepe/Islam Tepe.

stepped tunnel — at the time only the second discovered in north-western Iran, after the tunnel at Qamtchi Khay.⁸ After this first information was made public by Kleiss, the site basically made no further appearance in the archaeological literature. Stephan Kroll alone returned briefly to its pottery finds many years later.⁹

The discovery of Shah Tepe was significant because it contributed to questioning a traditional view that most rock-cut works preserved in territories that once belonged to the kingdom of Urartu were Urartian. In fact, it is almost impossible to date this type of structure reliably in the absence of specific characteristics (such as, for example, a considerable orthogonality or the presence of niches with multiple recesses). In Iran, for example, the dating of rock-cut features is currently rather tentative. There is no doubt that the discovery of Shah Tepe, a site of clearly uncertain chronology, has contributed to calling the Urartian assumption into question. For this reason, Kleiss wrote about the site and its *Treppentunnel*:

Erwähnt sei im Zusammenhang mit den urartäischen Plätzen noch der Shahtepe nördlich von Miandoab (...) Insofern ist er mit urartäischen Felstreppentunnels in Anatolien vergleichbar, auch wenn keineswegs gesichert ist, daß die Anlage auf dem Shahtepe urartäisch ist, im Gegenteil, die Oberflächenkeramik weist dem Shahtepe einige Bedeutung in medischer Zeit, im 6. Jahrhundert v. Chr., zu.¹⁰

⁸ Kleiss 1974, p. 103.

⁹ The site is listed as MY 7 (Kroll 1994).

¹⁰ Kleiss 1974, pp. 103, 105.

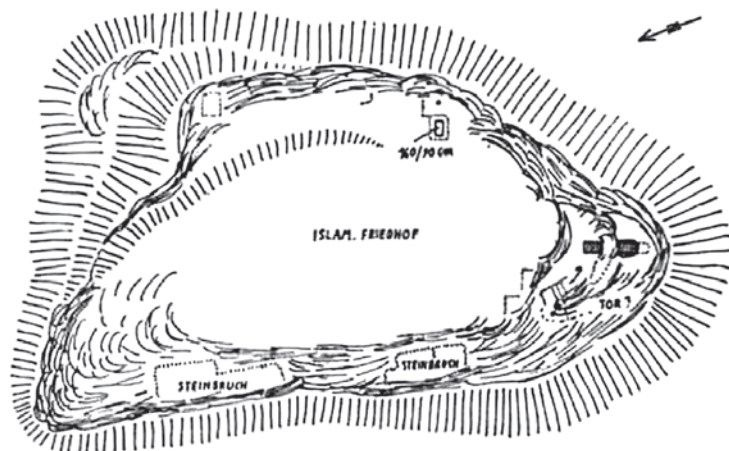


Fig. 3. Sketch plan of the Shah Tepe site (after Kleiss 1974: fig. 26).

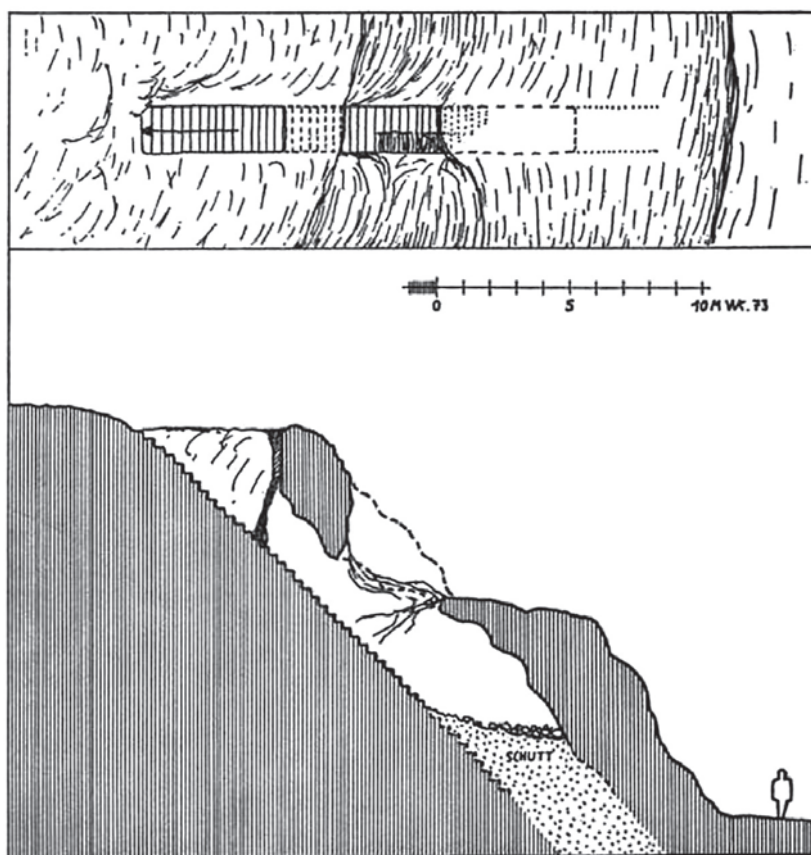


Fig. 4. Plan and section of the rock-cut stepped tunnel (after Kleiss 1974: fig. 27).

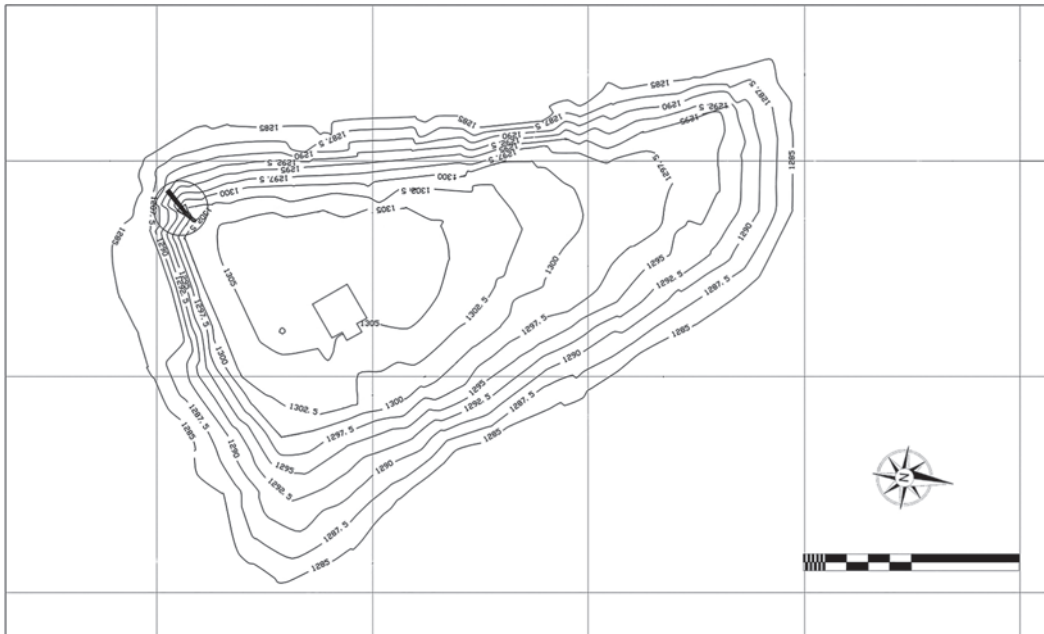


Fig. 5. Topographic map of the site.

The uncertainties regarding the site's architectural features led to its exclusion from the catalogue of Urartian sites published a few years later by Kleiss and Harald Hauptmann.¹¹ In this regard it must be noted that the cutting of the tunnel does not match the typical quality of Urartian workmanship. Also, there are no rock-cut stepped foundations around the edge of the hill; these would be expected if there were Urartian defences, as might be presumed if the tunnel was Urartian (see, for example, the case of Kalecik in Van). On this matter Kleiss later observed: "Der Treppentunnel von Sah Tappe liegt außerhalb des urartäischen Machtbereichs, greift aber auf urartäische Technik zurück und dürfte in medisch-achämenidischer Zeit angelegt worden sein."¹²

Description of the site

The site is located on a rock spur measuring 324×170 m, with a height of about 10 m, and ruins are scattered over an area of 4.90 ha (Figs 5–6). The modern village cemetery lies on the plateau at the top of the site. In the southwest, the rock-cut stairs of a possible pathway to the top of the hill are preserved; these exhibit clear parallels to similar architecture identified in Sheitanabad near Mahabad. The rock-cut stepped tunnel that is the subject of this article is located in the southern part of the outcrop, corresponding with the possible access to the site (Fig. 7). Kleiss counted 35 steps

¹¹ Kleiss and Hauptmann 1976.

¹² Kleiss 2015, pp. 27–29.



Fig. 6. General view of the site from the north.



Fig. 7. The upper part of the rock-cut stepped tunnel.



Fig. 8. The interruption in the rock-cut stepped tunnel.

carved into the rock. He recorded that the steps were 1.80 m long, 0.35 m wide and 0.35 m high. After 16 steps, the tunnel was interrupted by an opening of 5.50 m in length and 1.80 m in width, after which it continued (Figs 8–10).¹³ The lower part of the tunnel was filled with stone debris before it was cleared in 2011. For this reason, questions were raised about its function over the centuries. During our visit to the site, we noted that, at the end of the tunnel, rock-cut steps continue underwater (Fig. 11), indicating that the tunnel goes beneath the level of the plain. This strongly suggests that it was used to reach underground water, rather than being a sort of postern.

Large quarries have been identified on the western slope of the rock outcrop.¹⁴ A rock-cut grave, framed by recesses for a covering slab, is carved into the rock in the southeastern part of the plateau on top of the mound. The rectangular cavity measures 1.60 × 0.90 m. During our visits we had the opportunity to examine the site's state of preservation and record some further architectural details. The first area studied was the long western side of the rock outcrop. Kleiss identified this area, which overlooks the village, as a quarry (Figs 12–13). Everywhere there

¹³ Kleiss 1974, p. 106.

¹⁴ At the time of its discovery Shahtepe was defined as “Median”. Further information led to this date being revised and the rock-cut features of Shahtepe being considered contemporary with the structures of Bardakunte/Sheytanabad, north of Mahabad. Kleiss was sure that the fine stone cutting of the bedrock in Bardakunte and Shahtepe was performed with a specific kind of toothed chisel not used before the Achaemenid or Greek period (Personal communication Stephan Kroll to R. Dan, 2020). On this kind of stone-cutting tool, see Nylander 1970, p. 27, figs. 1.i–j, 2b.



Fig. 9. The beginning of the second section of the rock-cut stepped tunnel.



Fig. 10. Inner view of the second section of the rock-cut stepped tunnel, just before reaching water.



Fig. 11. Inner view of the second section of the rock-cut stepped tunnel looking towards the entrance.



Fig. 12. The rock-cut features on the western slope of the hill.



Fig. 13. A detail of the possible quarry area.

are still visible traces of cuts, stairs and rock carvings. The cuts are not coherent and do not have regular dimensions. Traces of working may still be seen on some stones. In some places, the stones have been cut into rectangular blocks, while other stones have irregular shapes, probably as result of both weathering and human destruction. In some places, grooves have been made in the rock, apparently to carve out stone blocks, but the task was for some reason left unfinished. In addition, in the same area, several semi-circular cavities have been cut into the hillside. These seem to have had a special purpose — perhaps they were used for the preparation of mortar. There are other cuts into the rock on the south and east sides of the hill. Unfortunately the rock-cut rectangular grave that Kleiss indicated in the southeastern area has been completely destroyed by the road that leads to the top of the hill. In general, the plateau at the top of the mound has been severely damaged since Kleiss' visits by the construction of a concrete water cistern, the progressive enlargement of the modern cemetery, and construction of the previously mentioned road which leads to it. Stone has been removed from the southern part of the site, which appears to be particularly badly damaged.

The rock-cut stepped tunnel

There is no doubt that the most distinctive feature of Shah Tepe is the rock-cut tunnel. It is locally known as Chehel Pele (literally 'forty steps') or Qrkh Pele in local dialect. At the time of our visit, as indicated above, the tunnel was freer of debris than when Kleiss saw it.¹⁵ The tunnel runs in a northeast/southwest direction, and 79 rock-cut steps were visible, over a length of 40 m (as mentioned, 35 steps were recorded at the time of Kleiss' visit). According to our recent measurements made at the site, the length of the steps in the upper part of the tunnel is 1.70 m, their width is 0.30 m and their height is c. 0.35 m. Everywhere, except for in a section in which the tunnel has collapsed, clear signs of the stone-working process are still observable on the ceiling. The entire carved roof of the tunnel is sloping and flat, but in some parts, it is arched. At an unknown date part of the tunnel — from stairs 22 to 38 — collapsed, possibly due to an earthquake or natural erosion, and rocks fell into it. Much of the stairway was shattered by this devastation, especially in its middle part. Despite the tunnel's notable length, the lower end seems to have been left unfinished — probably because the goal for which it was built had been achieved, namely to reach the water. As for other structures of this type that are currently known in different regions, their function would seem to be the same as that of the Shah Tepe example; that is, to reach rivers or aquifers. Usually considered one of the most distinctive Urartian features, this kind of rock-cut tunnel has recently been reassessed as being of later date, probably Hellenistic.¹⁶

¹⁵ Recently (winter 2011), due to the repeated efforts of the Islamic Council and the Friday Prayer Leader of the village, and with the help of the residents, the filled areas of the tunnel were emptied of rubbish and stones until the groundwater aquifer was reached.

¹⁶ This new study mostly considers this kind of structure in Anatolia, although reference is made to two Iranian specimens (Köroğlu and Danışmaz 2018, pp. 107–124).

The site's chronology according to previous studies

Regarding the chronology of the site, Kleiss initially proposed an Urartian to Median date (sixth century BCE), on the basis of pottery finds that inclined towards the later period.¹⁷ Very few pottery fragments were retrieved from the surface of the site, since almost everywhere the bedrock was exposed and there were few archaeological layers present. The few sherds analysed (medium-fine to medium-coarse fabrics, whitish-yellow to light brown in colour) were comparable to the late Zendan-i Suleiman material and also to the productions attested in Halaqu Tepe ('Buff Ware' and 'Halaqu Ware'). A single storage vessel fragment can be compared with a form widely found in the Urartian fortress of Bastam (Typ. 69a). For these reasons, Kroll proposed a generic dating between the end of the Middle Iron Age (Iron III) and the Late Iron Age (Iron IV).¹⁸ More recently, Kroll judged the site to be of Middle Iron Age (Iron III) date, this time without mentioning the Late Iron Age but suggesting that it might be older (Early Iron Age).¹⁹ Kroll's most recent reference to the site proposed that the architecture and the pottery should be dated to the Late Iron Age, more probably starting from the Hellenistic period.²⁰ However, it must be remembered that all the pottery published in the past and in this contribution came from the surface and therefore cannot be directly associated with the structures found at the site. The lack of Middle Iron Age or earlier pottery seems to be reliable, especially in view of the damage done to the site (for example, the road recently built on the top of it) and the proximity of the bedrock to the surface.

The pottery

During our visit to Shah Tepe, we noticed the general scarcity of surface pottery at the site. Seventeen fragments were identified, of which seven are diagnostic; all pertain to rims, mostly of small bowls or jars (Figs 14–15). The vessels were all wheel-made and related to daily use, with no visible decorations. The surfaces of three specimens are burnished.

Sherd no. 1 is part of a medium-deep conical bowl. The rim has an oval section, slightly thickened and inverted. The external surface is light brown (7.5YR 8/3) and finely burnished, with horizontal traces of treatment clearly visible. It is medium fired with a quite fine fabric. A comparison can be found in the Sassanid fort of Tureng Tepe (Lecomte 1987, Pl. 48.1).

Sherd no. 2 is part of small bowl/dish. The rim is highly everted, at nearly 90° degrees, rectangular in section, and with an upper surface that is flattened. On the exterior, just below the rim, a thin horizontal rib is visible. The external surface has undergone no surface treatment; it is smooth and brownish in colour (7.5YR 6/6). It is medium fired.

Sherd no. 3 is part of a small jar with wide mouth and short neck. The rim is thinner than the walls, externally highly everted, with a rectangular section. On the exterior, just below the rim, two grooves, probably due to the surface treatment, can be distinguished. The surface is burnished

¹⁷ Kleiss 1974, pp. 105–106.

¹⁸ Kroll 1976, p. 137; 1994.

¹⁹ Kroll 2005, p. 78.

²⁰ Personal communication Stephan Kroll 2020.

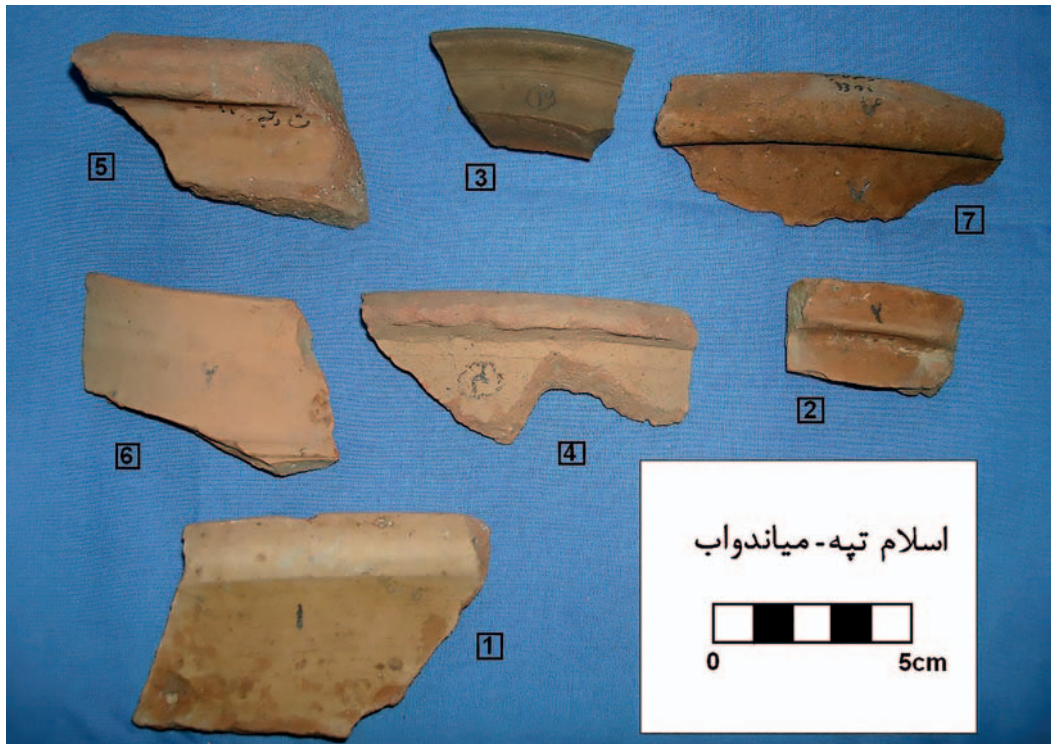


Fig. 14. Pottery collected on the slopes of the site.

and dark brown in colour (7.5YR 5/4). The pot was fired at a high temperature and has a quite fine fabric (for comparisons, see Lecomte 1987, Pl. 54.5).

Fragment no. 4 is part of a small wide-mouth jar, similar to fragment no. 5. The rim is everted, with a wide oval section. It is low-medium fired, light brown in colour (7.5YR 8/3) and has a smoothed surface. The fabric is quite coarse. A parallel for this shape can be traced in the Parthian materials from Qal'eh-i Yazdigird (Khosrowzadeh *et al.* 2020, Pl. 9.1).

Fragment no. 5 is part of a small wide-mouth jar, a small storage vessel, similar to fragment no. 4. The rim is everted with a rectangular section, and the upper part has a flat surface, suitable for supporting a lid. It is low-medium fired, light yellowish-brown in colour (7.5YR 7/6) with a smoothed surface and some traces of burnishing. The fabric is quite coarse. Comparisons can again be found at Qal'eh-i Yazdigird (Khosrowzadeh *et al.* 2020, Pls. 1.6, 7.1), with two different samples of neckless jars (the first glazed and the second with outer stepped wall).

Sherd no. 6 is a cup, with simple profile and deep bowl. The body is ovoid, and a small horizontal rib is barely visible at c. 2 cm below the rim. The surfaces are finely smoothed and light pinkish/light brownish in colour (7.5YR 7/4). It is medium fired, with fine fabric. This simple shape finds a wide range of parallels, due to its lack of features. It is possible to find different specimens in different periods, from the Parthian (Khosrowzadeh *et al.* 2020, Pl. 2.1) to the Sassanid (Lecomte 1987, Pls. 41.3-4).

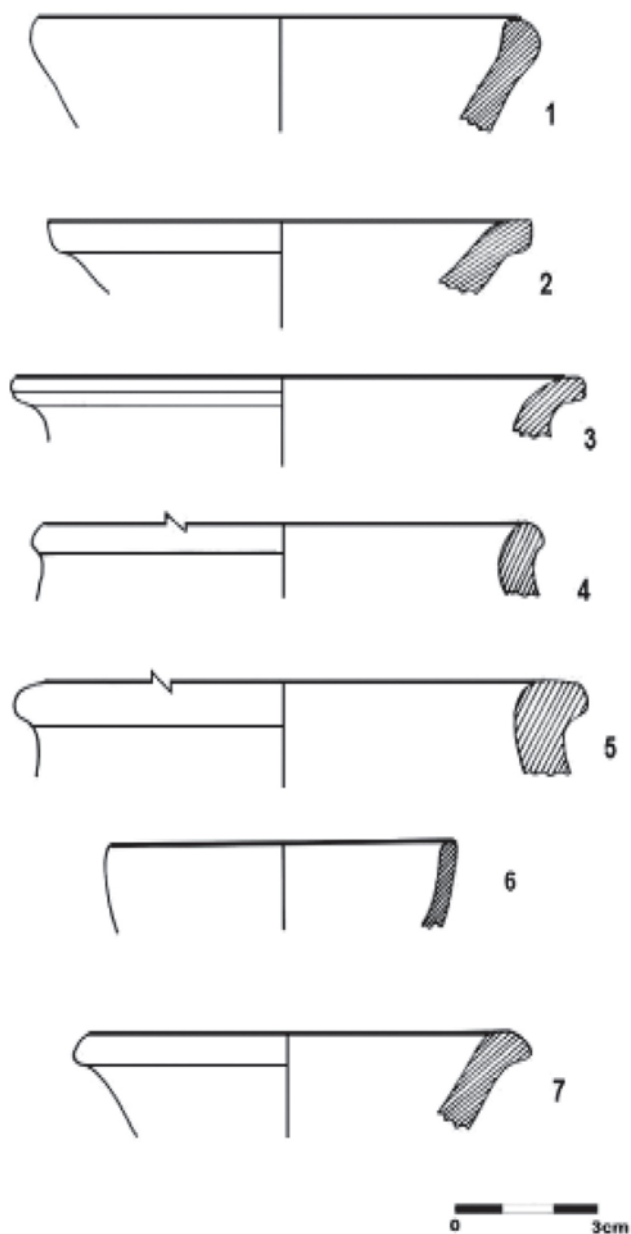


Fig. 15. Drawings of the seven sherds.

Fragment no. 7 is a coarse bowl/cup, with quite a deep conical body. The rim is everted and trapezoidal in section, and the coarse surface has a reddish-brownish colour (5YR 6/6), without surface treatments. Similar vessels can be found in Qal'eh-i Yazdigird (Khosrowzadeh *et al.* 2020, Pl. 2.2) and later in Tureng Tepe (Lecomte 1987, Pls. 56.5, 57.9).



Fig. 16. Pottery from the Shah Tepe site (courtesy of Stephan Kroll).

This pottery could be attributed to the Hellenistic/Parthian period,²¹ but some shapes reflect a longer use, up until the Sassanid period. The site was probably also used in later times, since specimens collected previously by Stephan Kroll (and kindly shared with us) seem to indicate a possible date from the Late Sasanian to the Pre-Islamic period (Fig. 16).

| N. | Vessel | Surface colour | Surface Treatment | Rim Diameter (cm) |
|----|-----------|----------------|-------------------|-------------------|
| 1. | Bowl | Light Brown | Burnished | 9.6 |
| 2. | Bowl/dish | Brown | Smoothed | 10 |
| 3. | Jar | Dark Brown | Burnished | 11.5 |
| 4. | Jar | Beige/creamy | Smoothed | 10 |
| 5. | Jar | Beige/creamy | Burnished | 11.1 |
| 6. | Bowl/cup | Buff ware | Finely smoothed | 7.2 |
| 7. | Bowl | Brown-reddish | Smoothed | 8.5 |

Chronology and Conclusions

Most of the evidence relating to the features presented and discussed in this article points to a significant Hellenistic to Late Antique occupation of Shah Tepe/Islam Tepe. Most of the sherds

²¹ The identification of pottery from this period is particularly difficult in this part of Iran, due to the substantial lack of well-dated stratigraphic excavations of these periods in the region. For these reasons we would like again to thank Stephan Kroll, without doubt the scholar with most experience in pottery from the Orumiyeh area, for his help and support.

collected seem to date to the Hellenistic, Parthian and Late Sassanid periods. With the current state of knowledge, it is in any case impossible to connect with any certainty the pottery and the rock-cut features, especially the rock-cut tunnel. For these reasons, an earlier date for the site's foundation cannot be excluded without more accurate investigations. Rock-cut features cannot be diagnostic elements without the presence of very specific features, which at Shah Tepe are absent. With regard to the more general problem of the dating of rock-cut tunnels — previously considered characteristic of the Urartian civilization, then subsequently all post-dated to the Hellenistic or later periods²² — Shah Tepe does not provide particularly useful data. This important stepped tunnel remains substantially undatable, like most similar rock-cut works.²³ Pottery at the site may be preliminarily interpreted as dating from the Hellenistic to the beginning of the Islamic period, but it was not found in direct association with the tunnel; while it might be contemporary to its construction, it may also simply testify to a later reuse of the site. Although works of this type are attested in Urartu — for example, at Toprakkale and Kalecik in the plain of Van²⁴ — the Shah Tepe specimen cannot be linked unequivocally to them. In addition, Shah Tepe is probably in an area at the limits of Urartian expansion, where the last site showing true signs of a Urartian presence is Taštepe (the inscription of Minua). One of the main dating problems is the absence of substantial archaeological deposits on the rocky spur and in connection with the rock-cut features that might allow these structures to be dated. In any case, test trenches at the foot of the rocky spur, where there is certainly intact archaeological stratigraphy, may in the future clarify the phases of occupation at the site. If these excavations should yield material relating to the late Iron Age and subsequent phases, then the rock-cut tunnel may also be realistically dated to these epochs. If more ancient material was to be identified, the dating of this important complex would certainly be called into question again. The matter of the site's possible function also remains unresolved. It was surely used for a period as a quarry, and it is possible that the construction of the rock-cut stepped tunnel to supply water was connected with quarrying activity. The absence of substantial fortifications indicates that the site was used in an era when local conflict was not significant, perhaps because the region was involved in political dynamics on a much larger scale. These considerations support a late date for most of the site's structures, certainly after the Iron Age.

²² Köroğlu and Danişmaz 2018, p. 120.

²³ Dan 2020b.

²⁴ The function of the Toprakkale rock-cut complex is under discussion. On the problem of dating almost all rock-cut stepped tunnels to the post-Urartian — in particular, the Hellenistic-Roman — era, see Köroğlu and Danişmaz 2018. For a different interpretation of these structures, which points to the fundamental impossibility of dating them, but without excluding their possible realization in the Urartian period, as the case of Kalecik (not discussed in Köroğlu and Danişmaz 2018) would seem to suggest, see Dan 2020b. I (Roberto Dan) consider morphological details such as the shape of the entrances (rounded or more squared) to be substantially irrelevant in chronological terms, especially when comparing specimens made hundreds of kilometres away from each other. I also believe that it is methodologically incorrect to distinguish between covered and uncovered rock-cut passages, since the construction of one type rather than another depended on the morphology of the site. Where possible, uncovered tunnels (as in Van, the capital of Urartu) were built with considerable savings in energy and manpower. Where this was not possible, entirely rock-cut tunnels were made. I therefore believe that in the case of these tunnels we must avoid attributing a specific type of structure to a given culture. Covered rock-cut tunnels became necessary where it was not possible to create such passages in other ways, or in those frontier forts where it was necessary to have protected access to water when under siege or subjected to other threats. The use of these tunnels remains a traditional solution that has been employed in various eras in mountainous areas. Our knowledge of rock-working techniques is currently insufficient for it to be possible to date these structures on the basis of their technical characteristics. At present these works, when not associated with other diagnostic elements, are not readily datable (Dan 2020b).

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The first season of excavation at Baba Kamal Tappeh, Tuyserkan, Western Iran

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Abstract

Baba Kamal Tappeh is an important multi-period site in the eastern part of western Iran (Central Zagros). Surface findings indicated different cultural periods, with ambiguities related to cultural sequences and levels. The authors therefore began an excavation project to better define the area. Stratigraphically, Baba Kamal revealed eight cultural periods: Middle and Late Chalcolithic, Early, Middle and Late Bronze Age, Iron III and Median, Parthian and Islamic.

Keywords: *Iran, Central Zagros, Tuyserkan, Baba Kamal Tappeh, stratigraphy*

Introduction

Baba Kamal Tappeh, Tuyserkan, is one of the most important sites of Hamadan province and western Iran, registered in the national monuments list of Iran as no. 1036 from 15 March 1975. Surface surveys revealed evidence from the Chalcolithic to Islamic periods, defined the area of the mound, and clarified the site's relationship to the Malayer, Kangavar and Nahavand plains. All these factors pointed to the significance of Baba Kamal Tappeh in archaeological studies of the Central Zagros, but it had never been scientifically investigated. Therefore, the authors excavated the mound in a first season of research in 2018, with the permission of the Archaeological Research Centre and under the supervision of the Cultural Heritage Research Centre. The surface findings from the Chalcolithic, Bronze, Iron, Parthian and Islamic periods led to prioritising the sequential and chronological study of the site. The presence of a mud-brick structure from the Median era not far from Nush-i Jan further encouraged the authors to excavate the mound.

Site Location

Baba Kamal Tappeh is located next to a village of the same name, 22 km from the city of Tuyserkan in Hamadan province, western Iran. It is at the western end of the Malayer plain and 20 km from Nush-i Jan. Baba Kamal is connected to the Kangavar and Nahavand plains by a corridor, and the mound is 35 km and 26 km respectively from the two key archaeological sites of Godin and Giyan. Baba Kamal lies next to the Kamalrod River, a feeder of the Gamasiab. Most residents of the village, which has good water sources and productive soil, are farmers. Unfortunately, they have used soil from the mound as fertiliser, causing considerable destruction (Figs 1–3).



Fig. 1. The location of Baba Kamal Tappeh in western Iran.

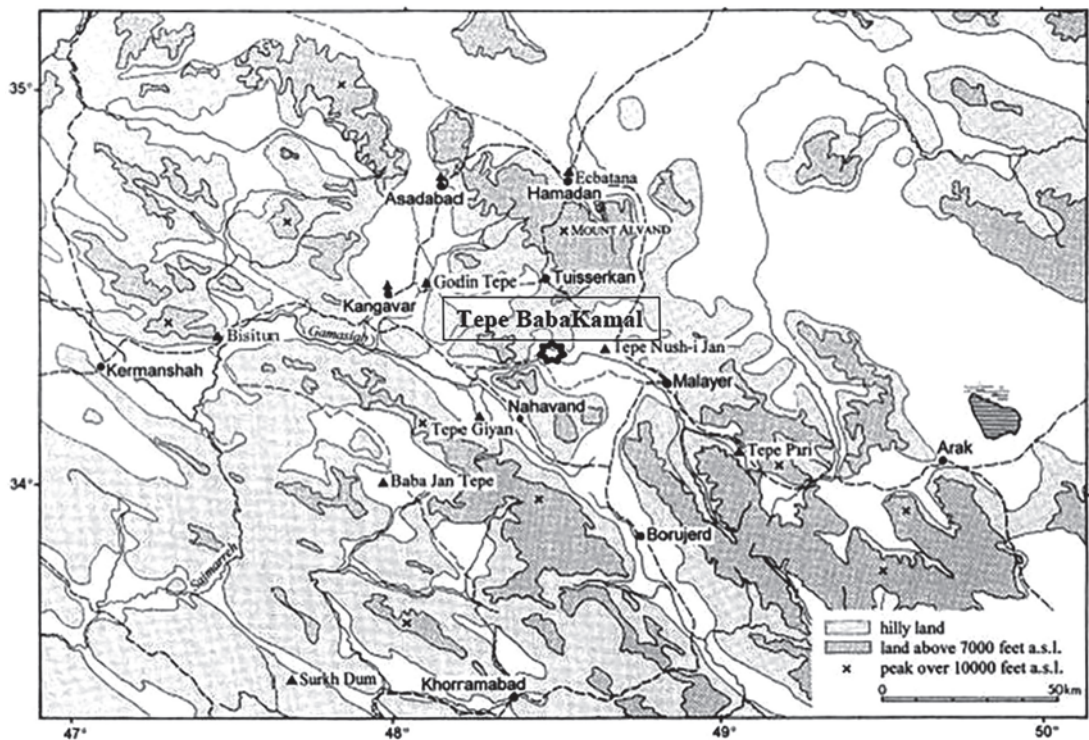


Fig. 2. The location of Baba Kamal Tappeh in the Central Zagros (after Stronach and Roaf 2007, fig. 1.2).



Fig. 3. General view of Baba Kamal Tappeh.

Background Research

Rosalind Howell documented 84 sites of the Iron Age III during surveys of the Malayer Plain, including Baba Kamal Tappeh.¹ The site was also registered during surveys of Tuyserkan sites (by Mohammadifar in 2008). However, it remained unexcavated until 2018, when the authors commenced their project.²

Excavation

Before the excavation of trenches began, aerial photography, topographic studies and surface evidence were consulted. One of the first things we did was try to track occupation by looking at the distribution of potsherds in different parts of the site, while also selecting the best places for soundings. Excavations at Baba Kamal were conducted from July to August 2018 over 40 days of fieldwork. The overall aims were to establish the periods of occupation and to obtain a stratigraphical sequence for the Malayer plain and the eastern part of western Iran (Central Zagros). More specifically, Baba Kamal Tappeh was excavated for four main reasons:

1. To determine the chronology of the mound, from the surface to the earliest phases;
2. To date and understand in more detail the large mud-brick structure assigned to Iron Age III and investigate how it related to the earlier strata;
3. To investigate the interrelation of the Early Bronze and Middle Bronze Age strata (transitional Godin IV [Yaniq Culture] to Godin III);

¹ Howell 1979; Stronach and Roaf 2007, p. 49.

² Mohammadifar and Hemati Azandaryani 2019.



Fig. 4. General view of Baba Kamal Tappeh.



Fig. 5. Aerial view of Baba Kamal Tappeh.

4. To understand the interrelation of the Late Chalcolithic and the Early Bronze Age (transitional Late Chalcolithic to Godin IV [Yaniq Culture]).

The excavations of Baba Kamal Tappeh were conducted in three places across the site: Trenches A, B and C were opened in an east–northeast direction for stratigraphic purposes (Figs 4–6). The methodology was systematic and locus-by-locus, recognising every stratum

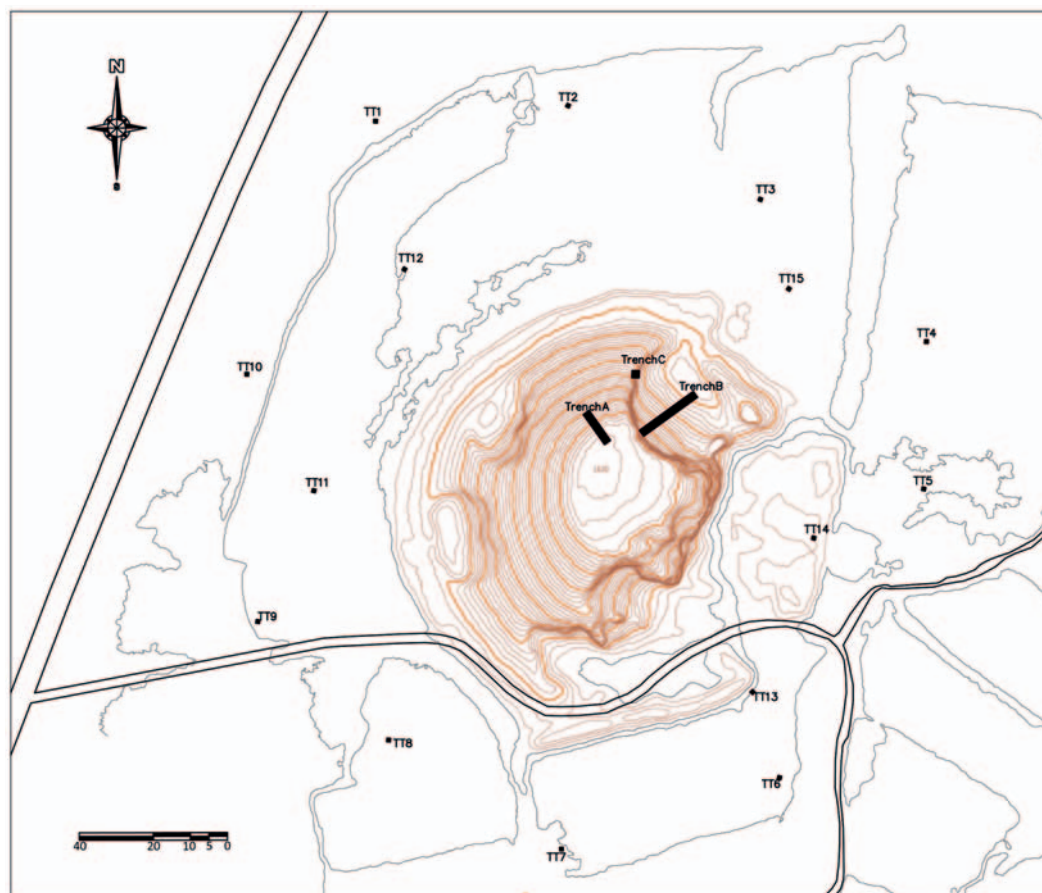


Fig. 6. The topography of Baba Kamal Tappeh.

and feature as a single locus, taking into account changes of context, colour, data, architectural structure and artefacts. Photographs were taken, and plans and drawings made, at different stages of the excavation.

The stratigraphy of the trenches is described below.

Trench A

Given the main goal of stratigraphical excavation and understanding the chronological sequence at Baba Kamal from upper to lower levels, Trench A was opened at the summit of the mound. Its orientation is north–south, and it is a stepped trench of 2×10 m (Fig. 7). It extends from the base level (BM) to the lowest level, at 478 cm depth, and it resulted in 17 loci of different kinds. The excavation of these levels revealed material from the Islamic, Parthian, Iron Age III and Median periods (Fig. 8a, 8b).



Fig. 7. The location of Trench A.

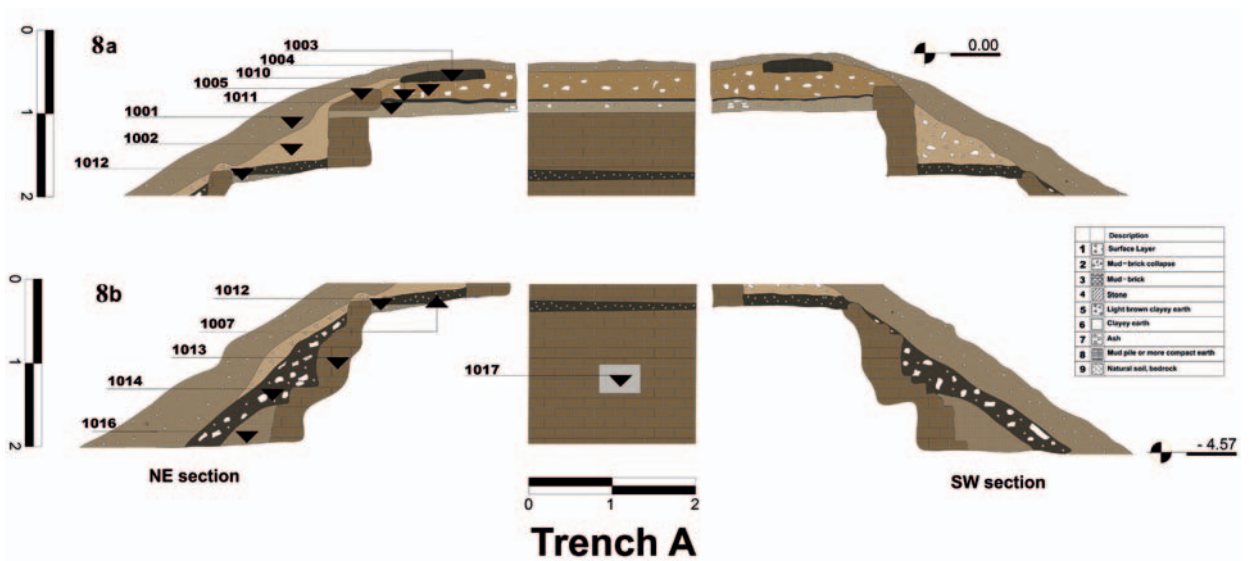


Fig. 8. The section of Trench A at Baba Kamal Tappeh.

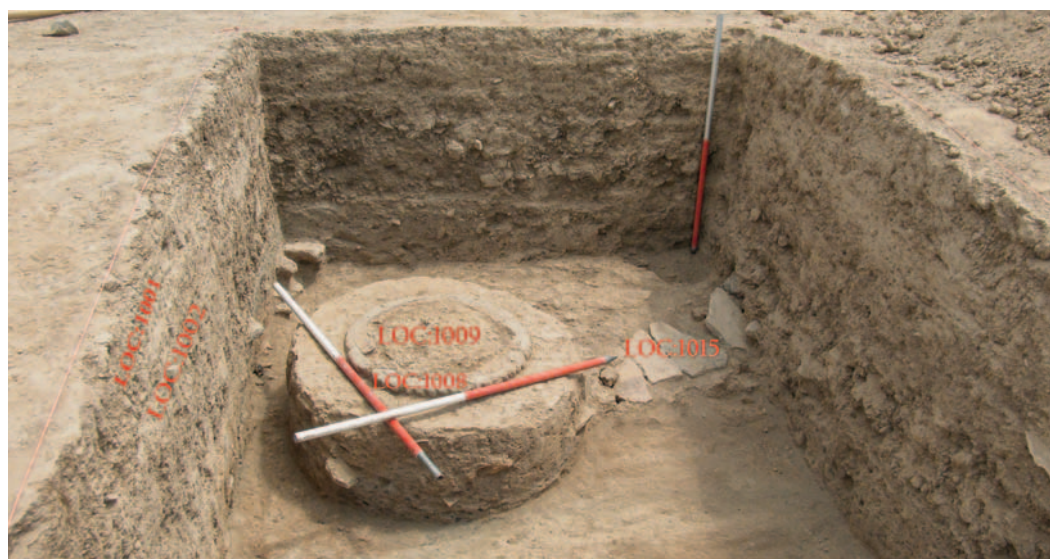


Fig. 9. The oven and thermal structures with obvious traces of burning.

Islamic period

Buildings. The Islamic layer, under surface humus, included a thermal structure in the south-eastern end of the trench, extending from 74–116 cm depth from the datum. The structure is an oven. Its interior has a diameter of 45 cm and its exterior, 57 cm. Its walls are 6 cm thick. The oven has zigzag decoration on its surface, and there are obvious traces of burning around it. It has a ventilator in the southern part of the trench, beginning at 83 cm and ending 112 cm from the datum. The ventilator is thus 29 cm deep; 100 cm of its length is visible in the trench, and 25 cm of its width. It was constructed with a soil floor and no walls but covered with slabs and bricks. These slabs have dimensions of 35 × 17 × 6 cm and obvious brown and grey heating and burning traces. A settlement floor was recognised in the southern half of the trench, between 65 cm and 61 cm from our datum. This 4-cm-thick floor has contextual pressing and compression traces and was removable in sheets from the original context. The floor was covered with plaster with patches of ashes (Fig 9).

Pottery. There were types of Islamic potsherds next to the structure, including simple blue, glazed, plain and Sgraffito examples.

Parthian Period

Buildings. There were remains of a mud-brick structure under the Islamic levels, which began 26 cm and ended 58 cm from the datum. The structure consisted of two rows and four lines of bricks. The dimensions of the mud bricks are 46 × 30 × 26 cm.

Pottery. There were potsherds next to the structure, typically Clinky wares with black paste and reddish-brown slip that can be dated to the Parthian era.



Fig 10. The mud-brick structure (wall = Locus 1013) supported by another structure, probably a buttress (= Locus 1016).

Iron Age III and Median Periods

In situ cultural deposits from the Median period or Iron Age III begin from 170 cm and end at 200 cm from the datum; thus, they are 30 cm thick. The cultural deposit is brown and relatively dense, and it contained valuable data dated to this period including architectural and pottery remains.

Buildings. The first mud-brick architectural remains, from Iron Age III, begin at a depth of 195 cm and end at 478 cm; that is, the limit of the excavation. It appears, however, that the structure continues further into the soil. It extends across the trench, oriented east–west, and is 200 cm long and 100 cm wide. The bricks have dimensions of 40 × 25 × 10 cm and are tempered with straw and sand. They were fastened using a 3 cm layer of mortar. It should be noted that this structure is supported by another structure — probably a buttress. The latter is found between 350 cm and 459 cm, alongside the first wall. It is 200 cm long and 80 cm wide and runs east–west, preserved to an average height of 109 cm relative to the excavation surface. The mud bricks are 40 × 22 × 12 cm, again tempered with straw and sand, and held together by a 3–6 cm layer of mortar. There is a gap between the structure (buttress?) and the wall that is filled with mortar (Fig. 10).



Fig. 11. Pottery of Locus 1007, Trench A.

Pottery. Typical ceramics of the Iron Age III and Median periods were recovered, including fragments of vessels with horizontal handles, horn handles and boat-like rims (Fig. 11).

Finds. A bronze rectangular fibula was found in Trench A (locus 1007). Its upper part is 40 mm, wide and its lower part, 30 mm; its average diameter is c. 7 mm. It has engraved decorations and is now clearly oxidized. Lithic facilities and bone tools were also found. A glass bead recovered from Trench A (Locus 1007) is one of the valuable findings from Baba Kamal Tappeh. It is 16 mm in diameter and 13 mm wide, with a hole at its centre that is 10 mm in diameter. The bead is white and oxidized after excavation. Its surface colour has changed to turquoise.



Fig. 12. General view Trench B in the east of Baba Kamal Tappeh.



Fig. 13. General view of Trench B after excavation.



Fig. 14. Trench B.

Trench B

Trench B is a 2 m wide \times 18 m long staircase trench, oriented northeast–southwest (Figs 12–14). The datum of the trench is A₂, at 990 cm below the main datum, BM. The trench was opened, for stratigraphical purposes, at an eastern angle to the damaged part of the mound. As with Trench A, parts of a mud-brick structure (buttress) were recovered, apparently a continuation of the great mud-brick structure in the damaged section. Trench B was opened to recover lower levels of the mud-brick structure and a foundation or probable platform beneath it. Eighteen loci were recovered down to 13.4 m from the datum (A₂): locus 1001 is surface soil and locus 1018 is virgin soil (Fig. 15a, 15b).

As mentioned, the upper level of the trench relates to the lowest part of the structure located in the damaged part of the mound. The structure is about 7 m long, based on stratigraphical evidence. Following excavation of the trench, the excavators encountered a significant problem: parts of the same mud-brick structure lay in the trench (not in situ) and prevented study of lower levels of the structure in most parts of Trench B. Most of the trench is filled with this debris, and this prevented stratigraphical operations in the trench. Therefore, the excavation continued at the bottom, in the deepest part of the trench, in a pioneer trench. The debris could have occurred for different reasons, including an earthquake or human actions.

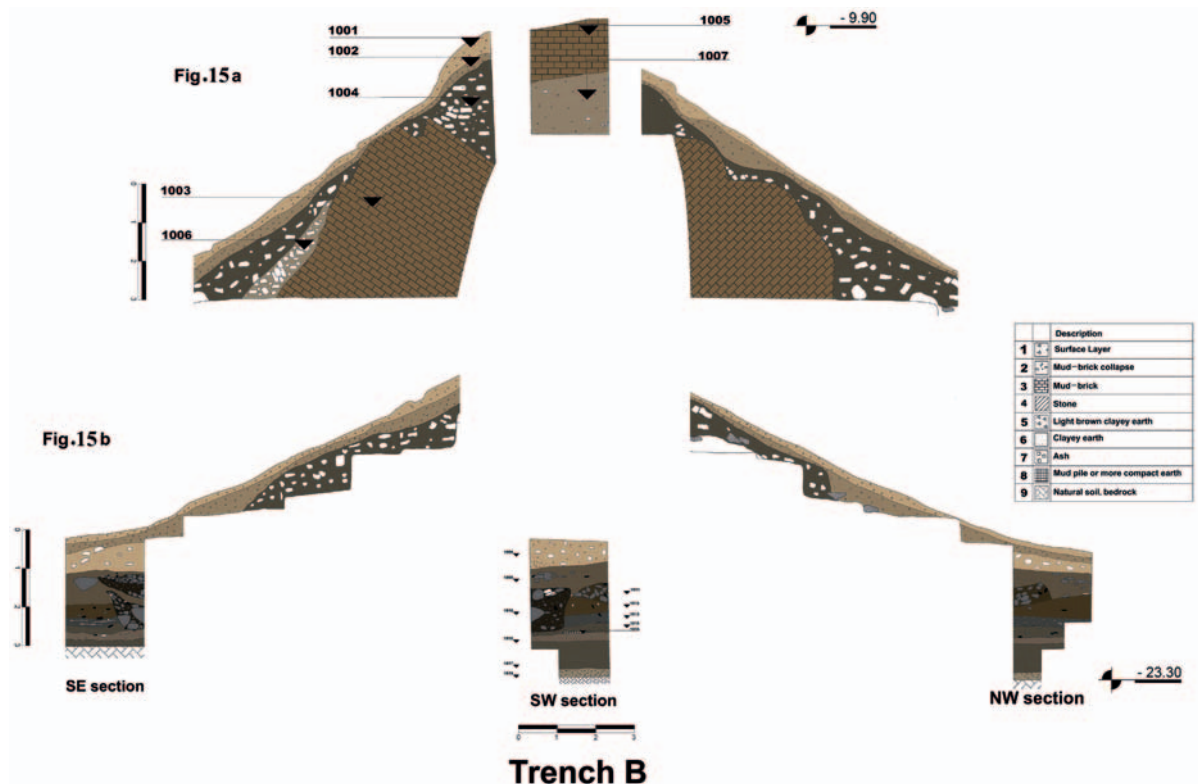


Fig. 15. The section of Trench B at Baba Kamal Tappeh.

The upper layers of the pioneer trench in Trench B contained debris that continued to 1150 cm depth from the datum (A_2). This disturbed layer contained various ceramics from the Iron Age III and Median periods, the Early Bronze Age, Middle Bronze Age, Late Bronze Age (Godin III and Yaniq) and Chalcolithic.

Middle and Late Bronze Ages (Godin III)

Stratigraphically reliable in situ cultural deposits began under disturbed layers at 1150 cm and ended at 1185 cm depth from the datum (A_2). Under these cultural deposits, cultural layers began from 1185 cm depth and continued to 1218 cm. Only ceramics typical of Godin III and Dalma were recovered, dating to the Late and Middle Bronze Age and the Late Chalcolithic. There was no trace of Yaniq Early Bronze Age pottery; cultural remains of the Chalcolithic began immediately beneath the Late and Middle Bronze Age, with no in situ evidence of the Early Bronze Age. Types of Early Bronze Age pottery were found, however, within the Late and Middle Bronze Layers.

Pottery. Late and Middle Bronze Age ceramics (painted buff pottery of Godin III) were recovered along with Early Bronze Age (Yaniq) and Late Chalcolithic (red Dalma with straw temper) pottery. Stratigraphically, the cultural deposit dated to the Late and Middle Bronze Ages.

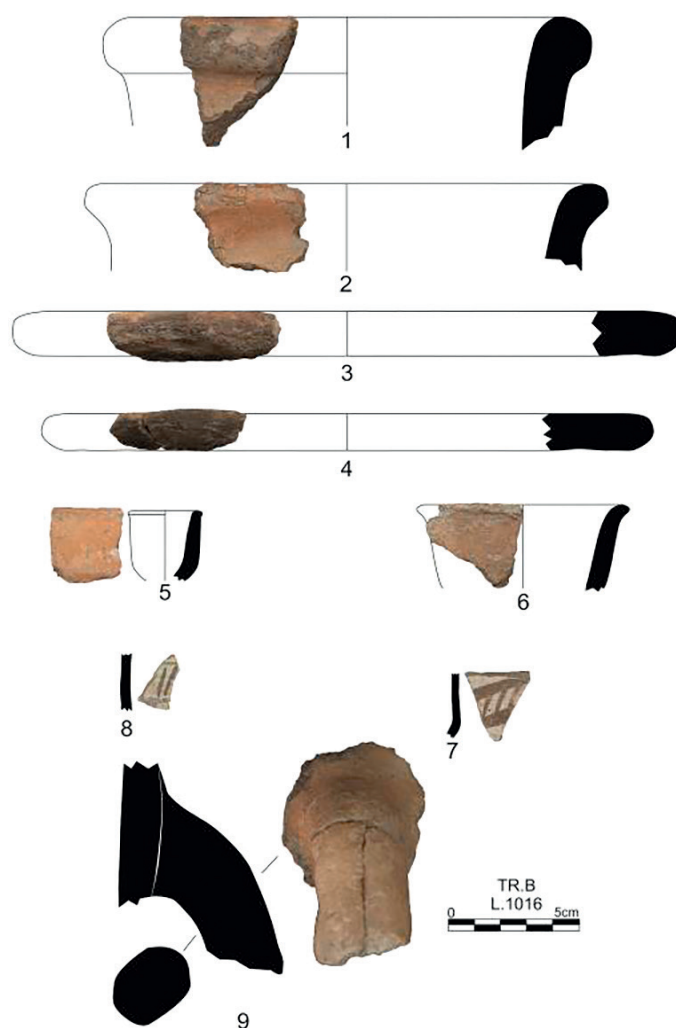


Fig. 16. Chalcolithic Pottery of Locus 1016, Trench B.

Chalcolithic (Dalma culture)

Buildings. There is a burnt dark brownish–grey layer beginning at 1218 cm depth from the A₂ datum that is probably part of a 2 cm-thick floor that ends at 1220 cm. This layer has dimensions of 70 × 90 cm. All the levels and deposits from the burnt layer to the virgin soil (1325 cm below the A₂ datum) date to the Chalcolithic, with typical Dalma ceramics and no artefacts or potsherds of other cultural periods.

Pottery. Dalma ceramics are typically red and light brown with thin slip, handmade with straw temper and insufficiently fired (Fig 16).



Fig. 17. The location of Trench C.

Trench C

Considering the limitations of Trench B due to debris from the mud-brick structure preventing study and excavation of lower levels in most of the trench, Trench C was opened at the junction of Trenches A and B. The purpose of Trench C was to locate strata beneath the mud-brick structure and determine any hypothetical relationships to earlier periods.

Trench C is a 2×2 m-deep sounding in the middle of the slope where the mud-brick structure was located (Figs 17–19). In total, there are 42 different loci down to 1335 cm from BM datum. The excavation revealed layers related to the Iron Age III and Median period, the Middle and Late Bronze Ages (Godin III), the transition from the Early to Middle Bronze Age, the Early Bronze Age (Godin IV or Yariq Culture), the transition from the Late Chalcolithic to the Early Bronze Age, and the Late and Middle Chalcolithic (Cheshmehnoosh and Dalma) periods (Fig. 20a, 20b).

Iron Age III and Median era

Buildings. The excavation proceeded as planned to 93 cm below the datum, where the mud-brick structure appeared. The structure continued in the southwestern corner of the trench to 374 cm depth. The maximum depth of the structure is 500 cm from the datum at the northern wall. Thus, it has different depths in the north and south of the trench and was probably a wall constructed without a foundation on a slope. The mud-brick and clay mortar structure, running north–south, covered the surface of the trench. The continuation of the wall is visible in the



Fig. 18. View of Trench C after excavation.



Fig. 19. The location of Trenches B and C at Baba Kamal Tappeh.

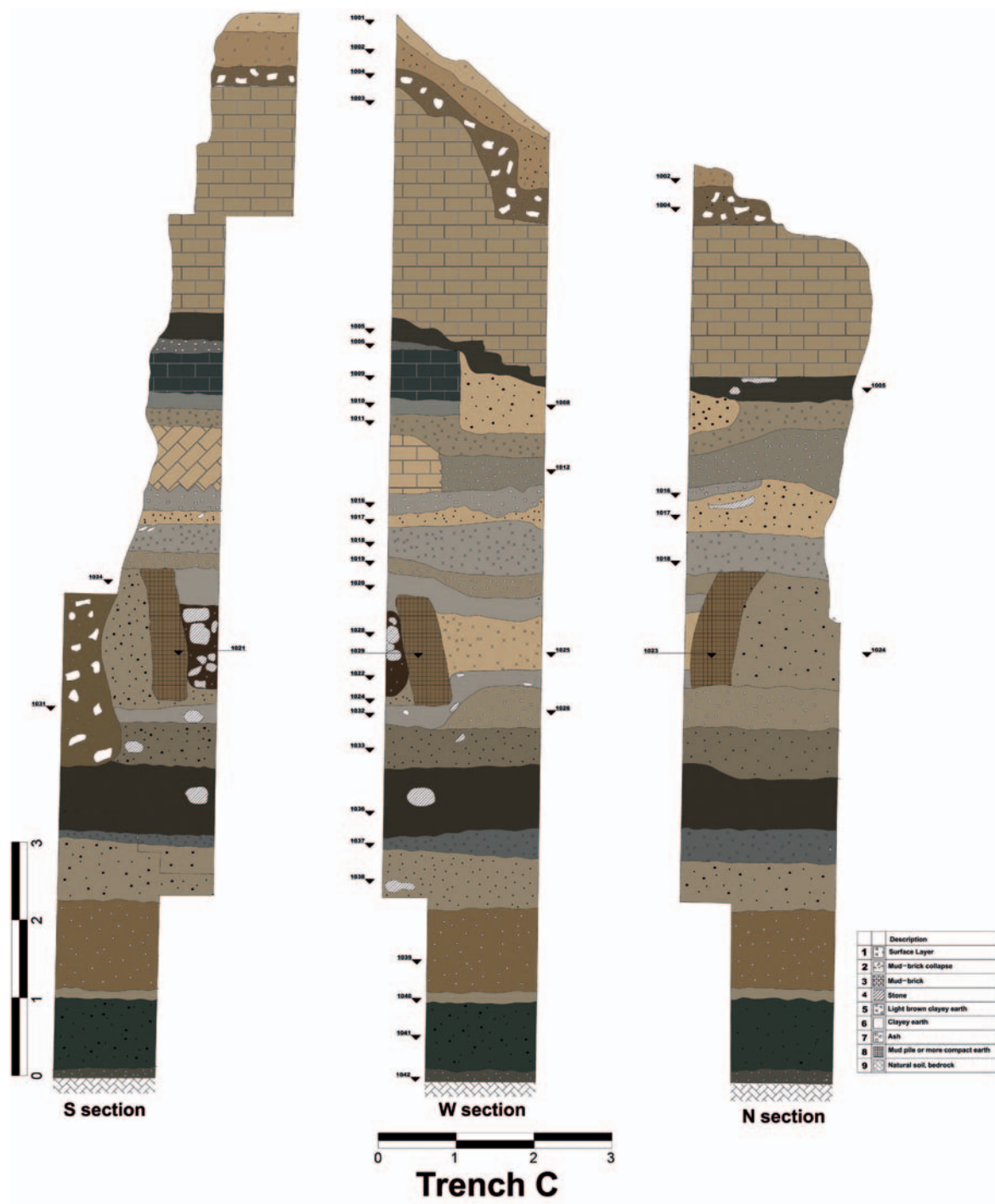


Fig. 20. The section of Trench C at Baba Kamal Tappeh.



Fig. 21. Mud bricks of the Iron III (Median Period) in Trench C.

western part of the trench, while it disappears in the eastern part of the trench because of its lower height there. The dimensions of the mud bricks are $40 \times 25 \times 12$ cm. They are tempered with straw and fine sand and range from grey to light brown in colour. Grey mud bricks are generally visible in the upper parts of the structure, whereas the light brown ones appear in the middle and lower parts. Pieces of pottery, bone and stone can be seen in the grey mud bricks, in addition to straw and sand. The mud bricks are very dense and have a very compact context (Figs 21–23). The potsherds used as temper are typical painted buff ceramics of Godin III and black burnished Yaniq sherds.

Pottery. Ceramics recovered from the mud-brick structure are typical buff ceramics of the Iron Age III and Median era that include boat-like vessels and vessels with horizontal and vertical handles. They usually range from buff to grey. They are similar to ceramic finds from Trenches A and B (Fig. 28).

Middle and Late Bronze Ages (Godin III)

Layers of Godin III begin immediately under the Iron Age III mud-brick structure; there is no evidence of Iron I and II in the trench, nor were there surface findings from these periods during surveys. The Iron Age III layers are directly above the levels of Godin III, after an interval. A grey layer at 430 cm beneath the BM datum is the first cultural layer of Godin III, which continues to 886 cm.



Fig. 22. Mud bricks of the Iron III (Median Period) in Trench C.

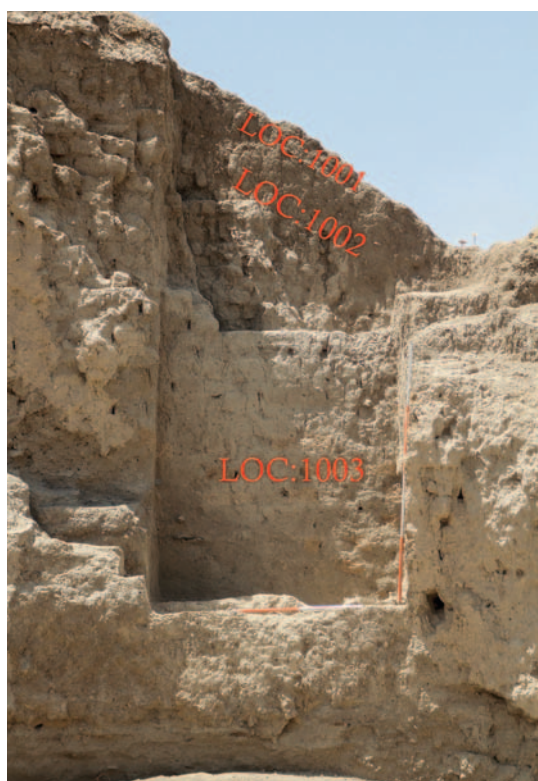


Fig. 23. Trench C during excavation.



Fig. 24. Compact floor with white plaster (Locus 1030).

Buildings. One building phase was excavated from the Middle and Late Bronze Ages. The compact floor with white plasters (Loc. 1030) is found in the northern part of the trench and is about 2 cm thick, 52 cm long and 35 cm wide (Fig. 24)

Pottery. Typical black burnished (Yaniq) potsherds were discovered, along with monochrome painted buff sherds decorated with black and brown lines. Painted buff ceramics of Godin III feature brownish–black-coloured decorations that vary in different layers of the period. They include parallel and curved lines, nested circles (so-called cow eyes), squared designs, nested triangles, flame (shark tooth) designs, basket-like crossed lines and abstract zoomorphic designs (generally abstract birds) (Figs 27–30).

Transition from the Early Bronze to Middle Bronze Ages (transitional phase of Godin IV [Yaniq] to Godin III)

Taking the form of a cultural deposit, levels of the transitional phase begin 886 cm from the datum and end at 945 cm. The deposition, a layer of burnt ashes, is immediately (with no interval) under the layers of Godin III. There is no trace of any structure. Godin IV (Early Bronze and Yaniq) and Godin III were juxtaposed, and stratigraphically one can call the layer transitional from Godin IV to Godin III.

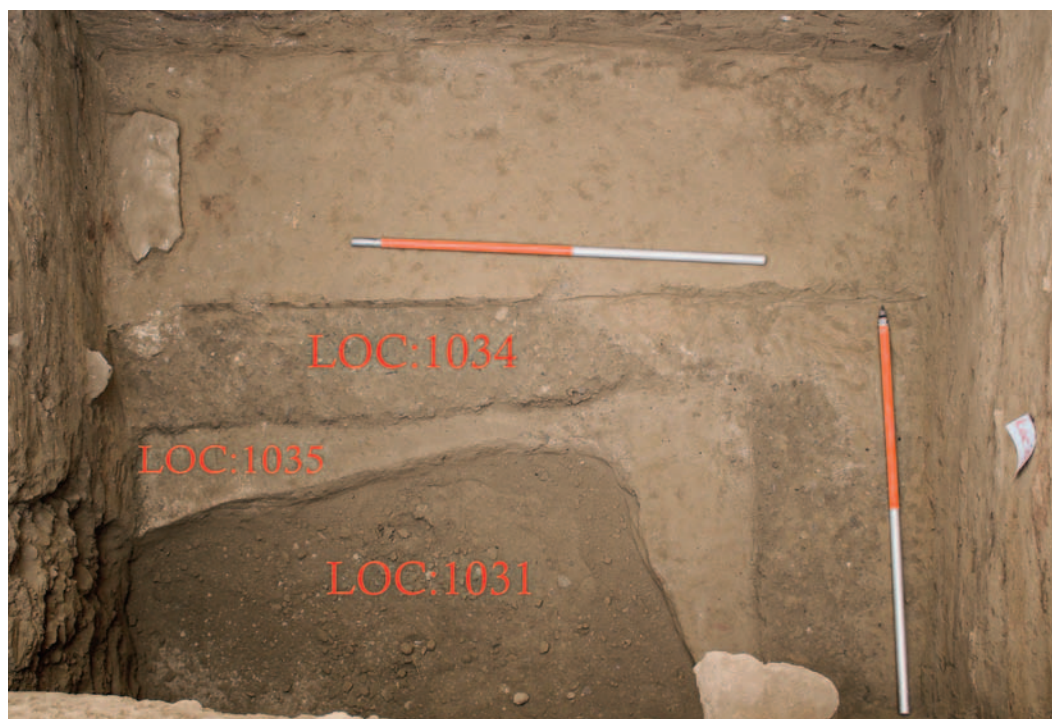


Fig. 25. The sediment layer (Locus 1034) and upper settlement floor (Locus 1035) near pit made by treasure-hunters (Locus 1031).

Pottery. Most of the findings are black, grey, shiny and opaque pottery that imply regional Yaniq ceramics with characteristic Nakhichevan handles (=Nakhichevan lug). There was also painted buff pottery of Godin III (Middle Bronze Age).

Early Bronze Age (Godin IV or Yaniq Culture)

Buildings. The earliest cultural evidence of the Early Bronze Age or Yaniq is from a sand deposit that extends between 945 cm and 953 cm from the BM datum. It is on average 3–5 cm thick. In the eastern part of the trench, a section can be seen that is about 2 cm thick, 200 cm in length and 80 cm wide (in an L-shape). The floor is compressed, with two layers of white lime coating. Evidence of Yaniq culture — except the context of the floor — generally comprises cultural and ash depositions, with no architectural structure (probably due to the small size of the trench) (Figs 25, 26). Artefacts of Yaniq culture continued to 1052 cm beneath the BM datum.

Pottery. Pottery findings included typical plain burnished black shiny examples that were insufficiently fired (the inner and outer slip is smoked). There is no trace of other Yaniq pottery types with incised decoration with or without white filling. There are black, grey and greyish-to-dark brown ceramics (Fig. 31).



Fig. 26. Cultural layer with burnt evidence (Locus 1037).



Fig. 27. Mixed Iron III (Median) pottery and Bronze Age pottery from Locus 1015.

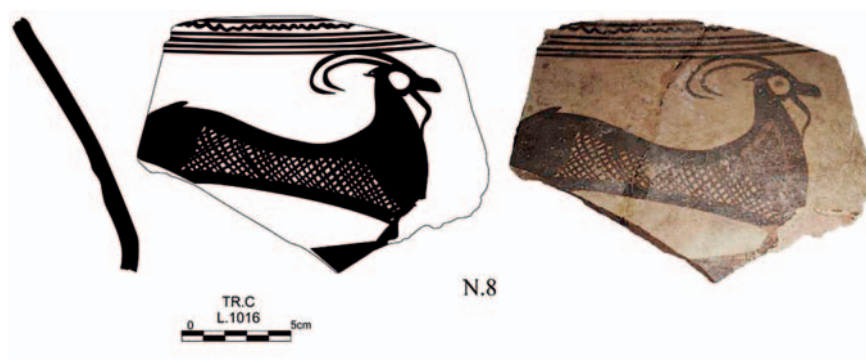


Fig. 28. Ibex motif from the Bronze Age (Godin III) layer.



Fig. 29. Pottery of the Middle and Late Bronze Age (Godin III) at Baba Kamal Tappeh.

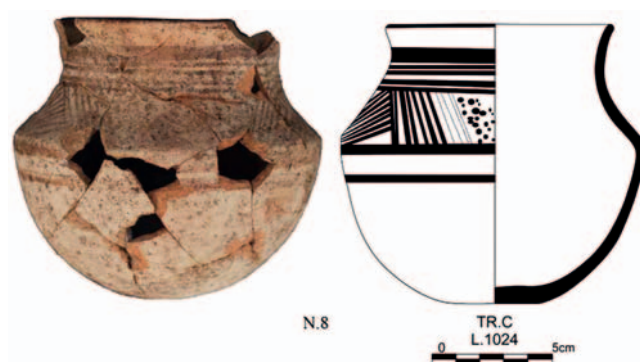


Fig. 30. Pottery of the Middle and Late Bronze Age (Godin III) at Baba Kamal Tappeh.

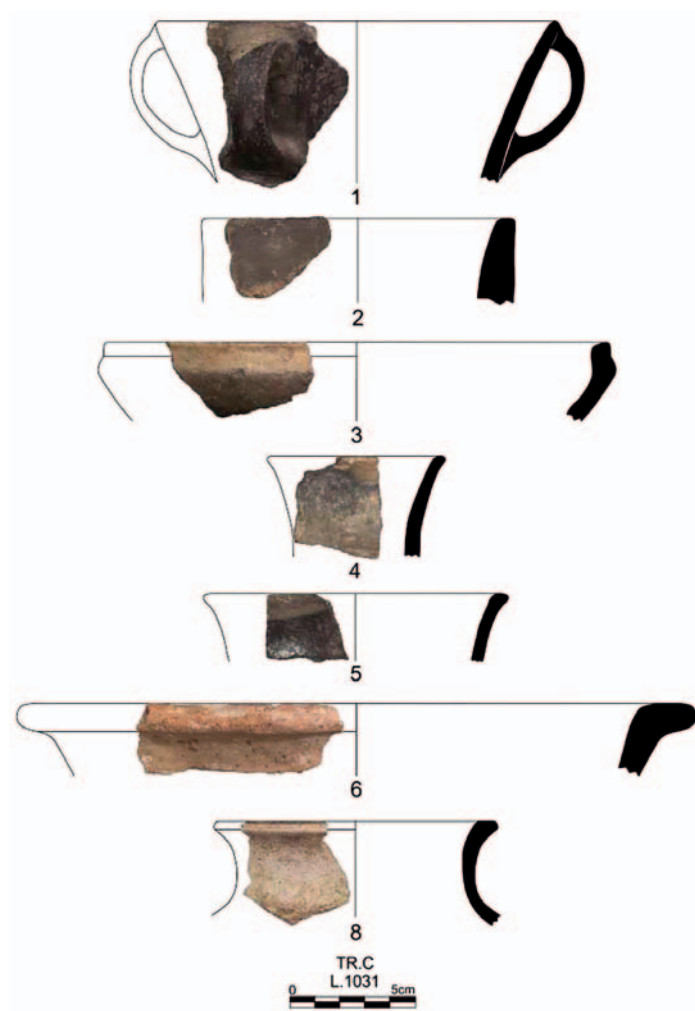


Fig. 31. Pottery of the Yariq period (Early Bronze Age) at Baba Kamal Tappeh.

Transition from Late Chalcolithic to Early Bronze

This layer appears to be a transitional phase from the Late Chalcolithic to the Early Bronze Age, with no interval. It occurs just under the Early Bronze layer (Yaniq culture) at 1052 cm depth from the BM datum. The deposition continues to 1120 cm depth, after which there is no trace of Early Bronze or Yaniq evidence.

Pottery. Plain buff sherds and one sherd with thick red slip that probably dates to late periods of the Chalcolithic, locally known as Cheshmehnoosh Culture. In addition, there is popular black, grey and burnished Yaniq pottery.

Late Chalcolithic (Cheshmehnoosh Culture)

Remains of this period consist of a cultural deposit that begins from 1120 cm and ends at 1221 cm depth from the BM datum. The depositional context includes material such as fine pieces of charcoal and evidence of *pisé*, although the latter remains ambiguous due to the small size of the trench.

Pottery. The few potsherds within the deposition were mostly typical buff and reddish buff, with no trace of the shiny black and grey ceramics that are characteristic of Yaniq or Godin IV. It can be suggested that the potsherds are from the late Chalcolithic of the region, known as Cheshmehnoosh Culture. A piece of Dalma sherd with thick red slip was also found.

Middle Chalcolithic (Dalma)

There was a level of burnt soil, c. 15 cm thick, recovered under the Late Chalcolithic layer. It contained no pottery evidence, but that may have been due to the small size of the trench. Pieces of Middle Chalcolithic or Dalma pottery were recovered from a cultural deposition between 1235 and 1321 cm from the BM datum. This level was immediately above virgin soil (with no cultural deposit, charcoal, pottery, et cetera).

Pottery. Sherds of Dalma ceramics with thick red slip were recovered from the deposit and continued down to the virgin soil. There was gradual reduction of buff wares and an increase in Dalma plain red slipped ceramics as the lower depths and virgin soil were approached (Fig. 32).

Analysis of findings

Baba Kamal is located at Tuyserkan, in the western part of the Malayer Plain. Sites from the Chalcolithic to Islamic periods have been identified on the plain, including Nush-i Jan, which is 20 km from Baba Kamal. Baba Kamal is also connected to the Kangavar and Nahavand Plains by way of a corridor and is 35 and 26 km respectively from the two key sites of Godin and Giyan. According to excavations of Trenches A, B and C at Baba Kamal, the site has eight cultural periods: Middle and Late Chalcolithic, Early, Middle, and Late Bronze Age, Iron Age III, Parthian and Islamic.

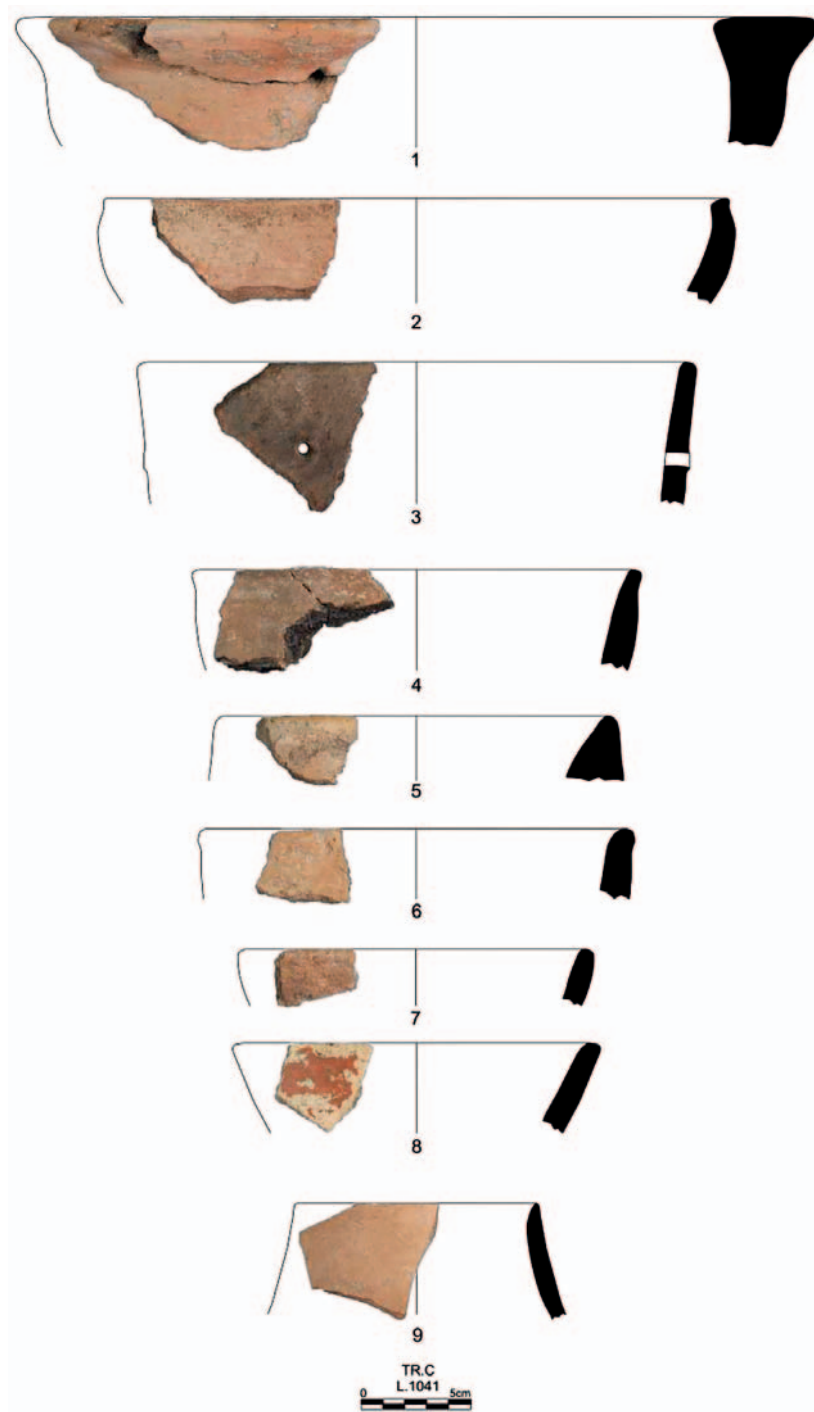


Fig. 32. The middle Chalcolithic potteries of the Baba Kamal Tappeh.

Within the limits of the excavation, there was no trace of architectural structures from the Middle and Late Chalcolithic. Pottery findings were the most significant cultural remains in these levels. Technologically, this pottery was similar to ceramics of other Central Zagros sites including Godin, Seh Gabi, Siahbid, Choghamaran and other sites of the Nahavand, Kangavar, and Harsin plains.³ It also resembles contemporary pottery from the Luristan region.⁴ In addition, it can be compared with findings from Malayer Plain sites including Gourab Tape⁵ and Anooj Tape,⁶ and other sites southeast of the plain, including Sangar Pa'in, Charcheshmeh II, Qalehno, Rezvankadeh, Golar Sirdar, Mahdavih II, Shat Qileh and Tani Kamari, all of which have been dated to the Late Chalcolithic.⁷ The data suggests that Baba Kamal is culturally related to other sites of the Kangavar, Harsin and Sahneh plains,⁸ as well as to sites of the Nahavand Plain.

Pottery is also the most common find dating to the Yaniq and Godin IV periods at Baba Kamal. Again there are no architectural remains. The findings at Baba Kamal are similar to Young's findings from Godin and her surveys of the Central Zagros.⁹ The Baba Kamal ceramics are also like more recent findings from the Central Zagros, including from the excavations at Koorijan, Pissa (through three seasons), Tepe Pari, Pa Tepe and Gourab.¹⁰ The only research that specifically involves Yaniq culture in the Central Zagros is the doctoral dissertation of Abbas Motarjem.¹¹ The findings of Baba Kamal compare to those for the Middle and Late Bronze Ages at Giyan or Godin III¹² and Godin,¹³ to the Central Zagros findings of Henrickson,¹⁴ and to various excavations and surveys on the Nahavand Plain both before and after the Islamic revolution.¹⁵

There are significant ceramic and architectural findings dated to the Iron Age III and Median periods at Baba Kamal. The architectural findings and mud bricks compare to similar examples from other Median sites, including Haji Khan Temple, Nush-i Jan, Moush Tepe, Gunespan Tepe and Godin.¹⁶ The pottery findings compare to those from Nush-i Jan, Haji Khan Temple, Godin Tepe, Baba Jan, Moush Tepe and Yalfan Tepe.¹⁷ Parthian findings from Baba Kamal are

³ Young 1969a, p. 65; Young and Levine 1974, p. 75; Henrickson 1983, p. 226; Saeidi Harsini 2006, pp. 399–423.

⁴ Goffe 1971, pp. 136–144.

⁵ Khaksar *et al.* 2015.

⁶ Hemati Azandaryani 2019.

⁷ Sarikhani *et al.* 2017.

⁸ Balmaki *et al.* 2013, p. 38.

⁹ Young and Levine 1974; Young and Weiss 1974; Weiss and Young 1975; Young 1966, 1969a, 1969b, 1975a; Rahbar and Young 1974.

¹⁰ Evaki 2004 (Koorijan); Ranjbaran *et al.* 2004, Mohammadifar *et al.* 2009 (Pissa); Babapiri 2006 (Tepe Pari); Rezvani 2008 (Pa Tepe); Khaksar *et al.* 2015, Khaksar 2006a, 2006b (Gourab).

¹¹ Motarjem 2008.

¹² Contenau and Ghrishamn 1935; Hemati Azandaryani and Khaksar 2013, pp. 47–51.

¹³ Young and Levin 1974; Young and Smith 1966, p. 389; Young 1969b.

¹⁴ Henrickson 1984, 1985, 1986.

¹⁵ Before: Herzfeld 1929, 1933; Goff 1966, 1971, 1980; Young 1966. After: Mohammadifar and Motarjem 2004; Saeidi Harsini 2006; Hozhabri 2008; Khaksar 2012.

¹⁶ Hemati Azandaryani *et al.* 2020 (Haji Khan Temple); Stronach and Roaf 2007, p. 181 (Nush-i Jan); Mohammadifar *et al.* 2015, p. 232 (Moush Tepe); Naseri *et al.* 2016, p. 108 (Gunespan Tepe); Young 1969b, pp. 7–24 (Godin).

¹⁷ Stronach 1978 (Nush-i Jan); Hemati Azandaryani *et al.* 2020 (Haji Khan Temple); Gopnik *et al.* 2011 (Godin Tepe); Goff 1985 (Baba Jan); Mohammadifar *et al.* 2015 (Moush Tepe); Almasi *et al.* 2017 (Yalfan Tepe).

comparable to the Clinky wares which are found at most Iranian sites, including Khorheh, Bistoon, central and southern Kurdistan and Azerbaijan, Qaleh Zahak, Hegmataneh, Nush-i Jan, Takht-i-Suleyman, Samen, Arzanfoud and Laodicea Nahavand.¹⁸

The highest level of Baba Kamal dates to the Islamic period, based on ceramic finds. The ceramics mainly include monochrome examples that compare to the Middle and Late Islamic periods of Hegmataneh, Samen and Laodicea Nahavand.¹⁹ Sgraffito potsherd findings are similar to findings from Samen, Hegmataneh and Neishaboor,²⁰ and to pieces that Grube introduced earlier.²¹

Conclusion

Baba Kamal, Tuyserkan, is among the most important sites of Hamadan province and western Iran, revealing prehistoric, historic and Islamic levels. The authors opened three stratigraphical trenches (A, B and C), oriented east–northeast, to study the chronology and stratigraphy of the site. Trench A, at the summit of the mound, revealed Islamic, Parthian and Iron III levels. Stratigraphical trenches B and C revealed impressive results, including evidence of a big Median mud-brick structure that could play an important role in Iron III studies in western Iran, given its location not far from Nush-i Jan. Layers of Godin III dated to the Late and Middle Bronze Ages imply that Baba Kamal was one of the southernmost presences of Yaniq in the central Zagros. There is evidence of Middle and Late Chalcolithic periods, Cheshmehnoosh and Dalma cultures under Yaniq levels and immediately above virgin soil.

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¹⁸ Rahbar 2004, p. 117 (Khorheh); Kleiss 1970, F32, Alibeigi *et al.* 2012, Pl 2 (Bistoon); Swiny 1975, p. 96 (Kurdistan, Azerbaijan); Keall 1981, pp. 33–80 (Qaleh Zahak); Mohammadifar *et al.* 2012 (Hegmataneh); Stronach 1978, p. 165 (Nush-i Jan); Schnyder 1975, p. 183 (Takht-i-Suleyman); Hemati Azandaryani and Khaksar 2015 (Samen); Hemati Azandaryani 2018 (Arzanfoud); Rahbar and Alibeigi 2009 (Laodicea Nahavand).

¹⁹ Ranjbaran 2014, pp. 475–493 (Hegmataneh); Hemati Azandaryani *et al.* 2017 (Samen); Rahbar 2013, p. 200 (Laodicea Nahavand).

²⁰ Hemati Azandaryani *et al.* 2017 (Samen); Ranjbaran 2014, p. 360 (Hegmataneh); Wilkinson 1973, pp. 74–89 (Neishaboor).

²¹ Grube 2006, pp. 282–283.

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Incised for eternity: the graffiti on the Second Stela of Kamose revisited

Roxana FLAMMINI

Abstract

*The temple of Karnak was the recipient of a vast amount of figural and textual graffiti, mainly dated from the New Kingdom onwards. Here I shall revisit the graffiti on the Second Stela of Kamose, a portable royal monument the king ordered to be set up in the temple in a nowadays unknown location. His aim was to record his victories over the Hyksos and celebrate the glory of the main god of the temple, Amun. The two figural graffiti incised on the stela's surfaces are proof of how people perceived, experienced and interacted with the monument through time.**

Keywords: *figural graffiti — Second Stela of Kamose — temple of Karnak*

Introduction

The Second Stela of Kamose (henceforth K2, Luxor Museum, J. 43, **Fig. 1**) is incised with two figural graffiti. While most of the graffiti found in the temple of Karnak were created on walls, these appear on a portable monument that once was erected in a fixed position inside the temple. One of the graffiti depicts a standing man in adoration and is located on the left side of the stela from the viewer's perspective, hidden from a frontal view (**Fig. 2**). The other, on the contrary, was made on the main surface, and sits to the right of the human figure carved at the bottom left — the “overseer of sealed things” Neshi (**Fig. 3**). It represents the well-known motif of the *Tilapia Nilotica* fish holding buds of lotus flowers in its mouth. Both figural graffiti were mentioned in the seminal contribution on the stela published in 1972, L. Labachi's *The Second Stela of Kamose and his Struggle against the Hyksos Ruler and his Capital*. Taking that study as a starting point, the aim of this paper is to contextualise both figural graffiti and to investigate the possible ways they can be understood.

Sometimes considered an epigraphical subcategory, current studies on ancient graffiti reveal their importance as sources that disclose different channels of expression of individuals as well as

* I am grateful to Hana Navrátilová for reading an earlier draft of this paper and making useful comments and suggestions; to Elizabeth Frood and Chiara Salvador for providing relevant information on the graffiti of the temple of Karnak; to Hourig Sourouzzian for sharing her views on the colossi of Ramesses II; to the CFEETK members Sébastien Biston-Moulin, Luc Gabolde and Jérémy Hourdin for their help with different issues regarding this contribution; and to the two anonymous reviewers provided by the journal for their valuable observations. Special thanks should be given to Nico Staring, for his detailed reading and revising of this paper. I would also like to express my gratitude to all the colleagues who helped with specific bibliography during the lock down of libraries due to the pandemic and to Abby Robinson for editing the text. Finally, this contribution reflects only my views on the subject, and all possible errors remain my own responsibility.

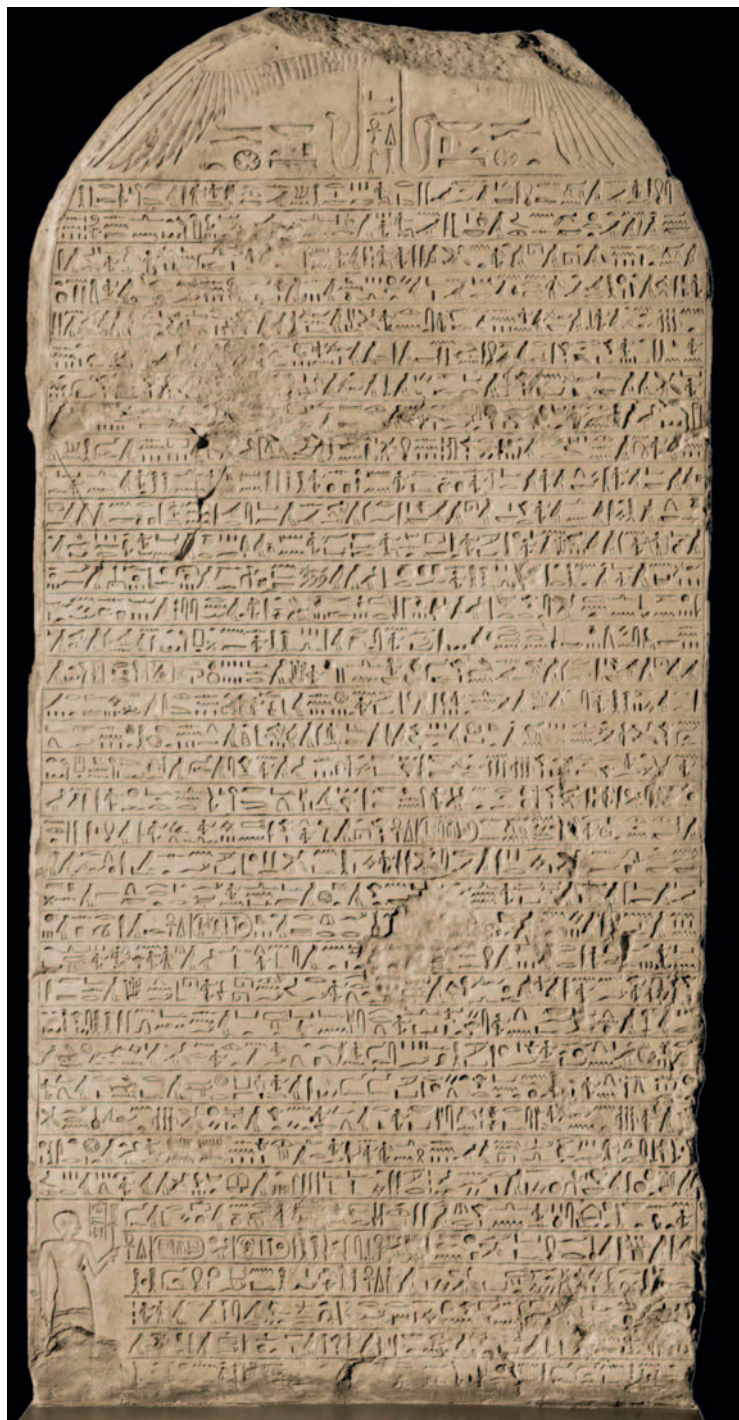


Fig. 1. Second Stela of Kamose, Luxor Museum J. 43. Biston-Moulin and Thiers 2017, p. 62.



Fig. 2. Left side of the Second Stela of Kamose. “Man in adoration” graffito inside a royal cartouche.
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Fig. 3. The representation of the supervisor of sealed things Neshi, K2.
 “Tilapia Nilotica fish with buds of lotus flowers in its mouth” graffito to the right of the image.
 © Luxor Museum.

diverse social groups. Graffiti are found almost everywhere: on different surfaces such as walls, columns, stelas, and pottery; inside and outside houses, tombs, temples; in public and private spaces; and in urban and non-urban contexts. It is implicit that ancient graffiti are not part of a surface’s original design and are always of unofficial character, although this does not mean that all of them are the product of spontaneous action. It is also possible to distinguish between graffiti that are incised — so that material from the surface is removed — and those that, conversely, add material (such as charcoal, paint or ink inscriptions, the latter called *dipinti*).¹ Moreover, the making of graffiti is a social practice that traverses different societies in time and space.² Modern city walls and natural monuments are not the only surfaces where individuals or groups of individuals commonly leave their messages: such practice is also evidenced in ancient monuments. Ancient Egypt is no exception, providing examples from different locations and periods.

Nevertheless, the modern reception of graffiti differs from the ancient one. In antiquity, graffiti were an accepted means of communication, whereas in our modern view they are usually considered

¹ Baird and Taylor 2016, pp. 17–19; see also Navrátilová 2010, p. 308.

² *Social practice* is a concept which has received different definitions; see Reckwitz 2002. Here I follow Haslanger (2018, p. 245) who defined it as “patterns of learned behavior that enable us (in the primary instances) to coordinate as members of a group in creating, distributing, managing, maintaining, and eliminating a resource (or multiple resources), due to mutual responsiveness to each other’s behavior and the resource(s) in question, as interpreted through meanings shared/cultural schemas.”

acts of vandalism and destruction — a way of disrespectful appropriation of space, especially in historical monuments, where any graffiti activity is usually prohibited.³ The ubiquitous presence of graffiti in ancient tombs and temples suggests that they were most probably tolerated and not considered sacrilegious.⁴ Ancient graffitists were not ruled by modern concerns about the protection of monuments, buildings or property; the acknowledgement of this fact is crucial to understanding the role of graffiti in antiquity, as it recognises the need to avoid modern bias and limits (the bias being in our interpretation of ancient experience).⁵

Theoretical approaches to ancient graffiti have also undergone transformations through time. The word “graffiti” derives from the Italian verb *graffiare*, “to scratch”.⁶ Its original conceptualisation was coined in the 19th century, when a huge quantity of texts and images of this kind were recovered from the ancient Roman city of Pompeii.⁷ In those early days, it was recognised that graffiti allowed “an unmediated contact with the writer,” but it was also considered that they “were made by the lower classes, and they were a subcategory of ancient inscriptions.” These latter statements have proved to be incorrect. Upper classes also produced graffiti,⁸ and considering them exclusively a subcategory of ancient inscriptions (epigraphy) limited the multiple possibilities that their study allows: “The features of graffiti must be thought of as a qualitative spectrum rather than an ensemble of clear-cut characteristics, as much in antiquity as today.”⁹

In ancient Egypt, different social groups used graffiti as a tool to express diverse actions, thoughts and emotions, as demonstrated by those found in, for instance, Theban tombs, temples (Karnak; Philae) and on rocks along desert routes.¹⁰ Many graffiti were made by individuals belonging to specialised social groups, such as people who worked in temples (mostly priests, but also scribes and craftsmen) and members of expeditions;¹¹ while another category is related to the graffiti left by visitors.¹² In this regard, A. Dorn called attention to the exclusive exposure of a place to specific social groups: not everyone went into the deserts or served in a temple.¹³

³ Frood and Ragazzoli 2013, p. 30; Keegan 2014, p. 4; Baird and Taylor 2016, pp. 20–21.

⁴ Baird and Taylor 2016, p. 19.

⁵ Certain modern bias could affect the understanding of the role of graffiti in ancient societies, as was clearly stated by C. Ragazzoli, Ö. Harmansah and Ch. Salvador: “Graffiti appear in places that are unexpected to us, where we think they should not be, where we believe they do not belong. There is an intuitive notion of defacement and unacceptability linked to graffiti, ancient or not. *This is mainly modern and Western in origin and is based on a particular definition of (high) culture that belongs first and foremost on paper (including a computer screen), whether or not it is then displayed on a wall*” (Ragazzoli *et al.* 2018, p. 6). My emphasis. See also Baird and Taylor 2016, p. 19.

⁶ Peden 2001, p. xix.

⁷ Ragazzoli *et al.* 2018, p. 1. There is an extensive bibliography on Pompeii graffiti; see Lohmann 2015 and references cited there.

⁸ Baird and Taylor 2011, p. 2.

⁹ Ragazzoli *et al.* 2018, p. 9.

¹⁰ For the temple of Amun at Karnak, see Frood and Ragazzoli 2013, p. 30; for the temple of Isis at Philae, see Cruz-Uribe 2010; for graffiti in desert routes, see Darnell 2013.

¹¹ Frood 2013.

¹² Navrátilová 2010.

¹³ “Als verbindendes Merkmal fällt jedoch auf, dass die meisten dieser Inschriften — bei Besuchergraffiti bleibt diese Frage noch zu klären — an Orten angebracht worden sind, zu denen der Zugang nur bestimmten Gruppen von Personen möglich oder erlaubt war: Die „Exklusivität/Exponiertheit“ eines Ortes lässt sich als Faktor bestimmen, der das Erstellen eines Graffitos begünstigt: Nicht jedermann geht in die Wüste, nur Priester haben Zutritt zum Tempeldach etc.” (Dorn 2014, p. 59).

Studies on ancient graffiti have a long history in Egyptology, but a renewed interest in them has grown exponentially during the last two decades, as a subject of study that provides additional information on ways of expression that existed in the past.¹⁴ Navrátilová has presented a fruitful discussion about graffiti terminology and interpretation methods in Egyptology.¹⁵ She provides an up-to-date debate about concepts such as graffiti, *dipinti*, rock inscriptions and rock drawings, and the efforts — at one point misleading — to distinguish one from another. She concludes that in Egyptology both carved and painted texts and drawings are called “graffiti.” She also discusses the proposals made by R. Müller-Wollerman and E. Cruz-Urbe about interpretation methods. Such discussions lead her to highlight the specific location and period to which the graffiti under study belongs — the relevance of context, following Cruz-Urbe’s suggestions in this regard — and considering that the choice

of place and position where the graffito was made, (is) a choice probably influenced by practical, technical as well as ideological aspects. The opportunity to make a graffito and the urge to do so were thus always framed within many conditions.¹⁶

Place and position are not the only variables to be considered when contextualising graffiti. Materiality is another perspective which clarifies how people engaged with objects, how they used them and what kind of relationships can be established from a perspective which goes beyond language.¹⁷ Thus, material contexts — walls, stelae, pottery and all other media able to receive graffiti — have a striking relevance in providing a possible meaning for textual and figural graffiti.

Nevertheless, studies on figural graffiti are not as common as on written graffiti. N. Staring clearly expressed this fact when proposing, following M. J. Raven, that the relevance given to textual inscriptions, neglecting non-lingual evidence “has certainly affected the study of figural graffiti.”¹⁸ E. Cruz-Urbe contributed to the *UCLA Encyclopedia of Egyptology* on this specific type of graffiti. There, he stated that during Predynastic Egypt, figural graffiti could have been grapholects of the Egyptian communication system, connecting non-literate Bedouin populations and literate settled groups in the Nile Valley.¹⁹ However, in the Egyptian case, graffiti have a particular quality due to the nature of the Egyptian script, which is essentially figurative. Thus, carving a figure could imply multiple purposes and refer to diverse meanings: it could register an action, an emotion, a desire, thoughts or beliefs. Nonetheless, grasping the meaning of figural graffiti is more difficult, due to the lack of a textual register.

Cruz-Urbe also stressed the relevance of the connection between graffiti and the location where they were found, giving the example of temples, where figures of gods were commonly discovered. As already mentioned, efforts in this direction were also made by H. Navrátilová, who emphasised the importance of contextualising graffiti, as in the case of those incised on K2.

In short, current approaches to graffiti take multiple variables into account to contextualise them: place, position, location, orientation, date and materials used in their making. These aspects are relevant for all graffiti types but crucial for figural graffiti.²⁰

¹⁴ See Ragazzoli 2017, p. 6.

¹⁵ Navrátilová 2010, pp. 306–312; *forthcoming*.

¹⁶ Navrátilová 2010, p. 312.

¹⁷ Volioti 2011, p. 141.

¹⁸ Staring 2011, p. 145.

¹⁹ Cruz-Urbe 2010, p. 1.

²⁰ Staring 2011, p. 148; van Pelt and Staring 2019, p. 3.

Beyond the narrative: contextualising the second Stela of Kamose

Recent theoretical approaches to the “writing phenomenon” — defined in a broad sense as including texts, symbols and signs, and/or images — as a socially embedded practice highlight the importance of bridging different fields of expertise, such as philology and archaeology,²¹ to which history can also be added. In this regard, the information conveyed by a written text is relevant, and a philological analysis is necessary. This was the case for the narrative of K2, but the story does not finish at that point, it goes beyond. It is worth mentioning that the stela was perceived and experienced during the time it was erected in the temple. People interacted with it, as the graffiti incised on its surfaces also demonstrate. Thus, once the stela was finished and placed in its intended location, it did not become a static and untouchable monument, unable to be part of further interactions. Consequently, it offers information that goes beyond the well-known narrative written on it. The written object is then a tool at least as much as a container for symbols. As C. Eyre stated: “It is something used for doing — a context for agency rather than simply surface for the graphic representation of language.”²²

As is well known, K2 is focused on the struggles among the Thebans, the Hyksos and the Nubians which took place during the late Second Intermediate Period. It records the actions of 17th Dynasty King Kamose (c. 1555–1550 BC) against the Hyksos ruler Apepi (Apophis) and was intended to be placed in the temple of Amun at Karnak for eternity, as the text specifically states: (37) ... *jmj jr.tw jrt.n nbt hm=j m nht hr wd htp st=f m 'Ipt-st m* (38) *W3st n nbh hn' dt*, “(37) ... have all my majesty has done in victory be put on a stela, (and) set its place in Karnak, in (38) Thebes, for ever and ever.”

The stela has 38 horizontal lines of sunken hieroglyphs, and traces of paint demonstrate that originally the hieroglyphs were painted blue and the lines in between red. Its dimensions are currently 220 cm high, 110 cm wide and 28 cm deep, while part of the rounded top is missing. The lunette preserves the representation of a winged sun-disk holding two *uraei*; between them, there is a vertical hieroglyph inscription reading *dj=f dj 'nh dd w3s* “he (i.e., the god) makes [him (i.e., the king)] be given life, stability and dominion.” Below the winged sun-disk there is an inscription replicated on both sides that reads *Bhdy nb pt* “he of Behdet (Edfu), lord of heaven.”²³ As mentioned above, a representation of the “overseer of sealed things” Neshi, is located at the lower left corner. The official is standing in front of the titulary of Kamose while holding a fan in his left hand. Neshi oversaw the making of the stela upon the king’s request, as stated in lines 37–38.

The narrative has been the focus of several linguistic analyses through the years: since Habachi’s *editio princeps*, published in 1972, it has been revisited many times.²⁴ Nevertheless, the emphasis it received overshadowed other possibilities for approaching the monument. By considering not only the written message but also other features — the extra-linguistic contexts involved; the material support upon which it was written and its physical trajectory; the *damnatio memoriae* exerted over names; and the making of graffiti on the stela surfaces — it is possible to obtain a more complete understanding of the interaction between said monument and people through time.

²¹ Piquette and Whitehouse 2013, p. 2.

²² Eyre 2018, p. 1.

²³ Habachi 1972, p. 31.

²⁴ Smith and Smith 1976; Kaplony-Heckel 1985; Goedicke 1995; Ryholt 1997; Redford 1997; Hofmann 2004; Spalinger 2010; Enmarch 2013; Mathieu 2019.

Fortunately, two extra-linguistic contexts can be clearly delineated: the socio-historical context of monument's production (it was made during the late Second Intermediate Period, when the struggles among the Thebans, Hyksos and Nubians led to war) and the physical context of its destination (the temple of Amun at Karnak). Both are relevant to contextualising the graffiti, but the second factor is crucial, as will be seen below.

The stela was made from a pre-existing monument; a deconstructed and decontextualised door jamb belonging to 12th Dynasty King Senusret I.²⁵ Amun, the main god of Thebes, was the recipient of Kamose's veneration. The stela states that the ruler conducted rituals at the temple — burning incense for the god in the Holy of the Holies — and received the *khepeshe* — a ritual action through which the god conferred military victory upon him giving him the title “son of Amun” upon his successful return to the city (lines 33–34).

Even though the stela contains the information that it was intended to be placed in the temple, its precise original location there remains unknown. Fragments of other stelae of Kamose also appeared in secondary positions: two fragments of the First Stela were found in the foundations of the south wing of the Third Pylon, and the fragmentary Third Stela was found poorly preserved in 1901, close to the south face of the east tower of the Eighth Pylon, and was identified in 2005.²⁶ Another stela, found in Armant in 2008, proved that Kamose carried out works in Karnak, but later transformations of the structure of the temple at the beginning of the 18th dynasty led to their disappearance.²⁷ Nevertheless, the number of stelae of this king found in the temple, referring to the struggles between the ruler and his foreign enemies and the fact that he granted the god Amun his victories — as is explicitly mentioned in K2 — leads to the conclusion that they must have originally occupied a prominent position inside the temple.²⁸

K2 was found in 1954, hidden in the base of a colossal statue attributed to Ramesses II; this was the northern colossus, later usurped by Sety II and Ramesses IV. The statue was located close to the north side of the western entrance to the Great Hypostyle Hall, in front of the Second Pylon gate, opposite a better-preserved colossus of the same style and shape (the so-called southern colossus).²⁹ It was very damaged, and only the base, the pedestal, and the lower section (the feet and part of the legs) were recovered, while other fragments were found in the surroundings.³⁰ K2 had been buried in the lower layer of the statue base, “lying with its inscribed surface downwards on a layer of sand,” in the words of Habachi.³¹

A block belonging to a monument of 18th Dynasty king Tuthmose IV, whose names were erased and overwritten with those of Ramesses II in the form adopted from his 21st year onwards, *Ra-ms-sw*, was found in the same layer.³² This fact points to an arrangement of the foundation

²⁵ The inscriptions on both sides of the Stela, belonging to Senusret I, were revisited by Biston-Moulin (2011); see also Larché 2009, p. 147.

²⁶ For the First Stela, see Lacau 1939, p. 245 and no. 1; for the Third, see Van Siclen 2005; 2010; and Gabolde 2005.

²⁷ Biston-Moulin 2011, p. 90 and n. 23.

²⁸ Blyth 2007, p. 28.

²⁹ Habachi 1972, p. 16. Based on stylistic features, H. Sourouzian (1995, p. 513) has proposed that Ramesses II's colossi located at the Second Pylon gate, belonged originally to an 18th dynasty king, probably Hatshepsut or Tuthmose III.

³⁰ Sourouzian 1995, pp. 528–529.

³¹ Kamil 2007, pp. 192–193; Habachi 1972, p. 28.

³² Habachi 1972, p. 28. As P. Brand (2010) states, reuse was not only a matter of expediency, sometimes it also had an ideological component. Thus, it is highly possible that the selection of blocks to be buried in the base of the colossi was not made haphazardly.

blocks in the colossus base towards the end of his reign or slightly later, after his death. That date for a first “burial” can also be reinforced by the traces of restoration noticeable on the stela’s surface. The so-called *damnatio memoriae* was exerted not only over the coronation name of the Hyksos Apepi, Auserre — unfortunately, it is not possible to determine when that erasure was made — but also over the name of the god Amun. The later restoration of the name of the god may be an indication that the stela was still visible after the Amarna interregnum.³³

Nevertheless, both colossi were moved into different positions as successive kings conducted works in the temple after the reign of Ramesses II. H. Sourouzian suggests that they were probably moved from a parallel to a face-to-face position during Sety II’s reign.³⁴ Further moves could have taken place under the rule of the High Priest of Amun, Pinedjem I (21st dynasty), who had also usurped an Osiride colossus of Ramesses II and erected it close to the northern colossus.³⁵ The base of this statue also contained many foundation blocks that came from monuments belonging to Amenhotep III, Akhenaten and Sety I. The names of this last king were cut with those of Ramesses II. To make the scenario even more complex, additional moves could have taken place during the works conducted by the Bubastites in the Great Court.³⁶

Was the stela — and the other foundation blocks — “unearthed and buried” during those moves? Could the graffiti have been incised during any one of these occasions? These questions open several hypotheses regarding a possible date for the making of the graffiti, in particular the fish graffito, as argued below.

The graffiti of the second Stela of Kamose

As already mentioned, K2 presents two figural graffiti: one of them is located on the left side of the monument from the viewer’s point of view, hidden from a frontal perspective, and represents a man in adoration; the other was made on the main surface to the right of the representation of the “overseer of sealed things” Neshi and represents the well-known motif of the *Tilapia Nilotica* fish holding buds of lotus flowers in its mouth. Both figures are incised in a very simple manner.

Most preserved graffiti in the temple came from late New Kingdom times, and later.³⁷ They have been surveyed and compiled by C. Traunecker (1979), and this vast unpublished corpus has been entrusted to Elizabeth Frood and conferred upon the University of Oxford. This material is not only relevant to visualising patterns of distribution, which “may also shed light on the daily movements of temple personnel,” helping in the assessment of “how rules of decorum (...) were

³³ Habachi 1972, p. 47.

³⁴ Sourouzian 1995, p. 529.

³⁵ Dembitz 2015, p. 176.


³⁶ Sourouzian 1995, pp. 527–528.

³⁷ Frood 2013, p. 287. The dating to the New Kingdom and later periods could also be a result of the current preservation of the temple, with architectural elements dating to those periods (I am grateful to N. Staring for calling my attention to this issue.) If the figural and textual graffiti from the temple of Medamud are dated to the Middle Kingdom, the attestation of graffiti in temples can probably be traced back to earlier periods (Frood 2013, p. 288 and n. 7; Salvador 2016, p. 188 and n. 21).

operating along with their possible breaches”;³⁸ it also makes it possible to compare the stela’s graffiti with other examples preserved in the temple.

The Standing Man in Adoration

The incised figure of a man (approx. 10.5 cm high × 4 cm wide) (Fig. 4a and b) is located in the upper section of the left side of the stela, inside a damaged cartouche identified as belonging to Middle Kingdom King Senusret I.³⁹ This figural graffito was probably made while the stela was set up inside the temple, since the hieroglyphs belonging to Senusret I’s former monument are oriented upside down on both sides of the stela, while the graffito is parallel to the main text on the frontal surface, as Habachi already suggested.⁴⁰ Habachi also considered Kamose to be the recipient of the adoration: “Undoubtedly Kamose was looked upon as a hero by succeeding generations, and one of the admirers of the sovereign’s great achievements carved his figure on the side.”⁴¹ Habachi made no further comments on this graffito.

The image resembles Gardiner list sign A30  “man with arms outstretched,” which usually stands as determinative for the terms *j3w* “adoration, praise”⁴² and *dw3t* “praise, worship.”⁴³ The figure is not accompanied by any inscription, symbol or sign which could help identify the male individual who is being represented. He is dressed in the usual Egyptian kilt, reaching to his knees, with both arms uplifted in the action of adoring or praising. The head is bald, and he seems to be barefoot. The figure is facing to its right, towards the main surface of the monument. The accurate representation suggests the drawing was made by a trained hand, but no information regarding the level of literacy of the graffitist can be deduced from the figure.

As already mentioned, C. Traunecker surveyed and compiled the graffiti of the temple, and a preliminary presentation of the material was published in 1979. There, the author introduced several statements which are useful to our goals: first, that the graffitists were part of the temple staff; second, that the main locations where the graffiti appeared were the outer walls of the temple of Ptah and the southern wing of the temple; third, that they appeared in certain discrete places in the complex; and finally, that the hierarchical superiors of the graffitists or a deity acted as mediators between them and the main god. Traunecker presents two graffiti of individuals belonging to the lower staff of the temple (a *wab* priest or crafter in one case and a pastry chief in the other) to illustrate these features, and both have individuals in an adoring pose.⁴⁴ Following these statements, E. Frood also suggests that those examples found in temple structures were probably made by the staff that were serving there.⁴⁵ This is likely to be the case for the K2’s “man in adoration” graffito.

³⁸ *Decorum* was defined by J. Baines (1990, p. 20) as “a set of rules and practices defining what may be represented pictorially with captions, displayed, and possibly written down, in which context and in what form.” See also Baines 2007, pp. 14–16. It is not clear if graffiti were exempted from the rules of decorum in temples or if they were an integral part of those rules (see Salvador 2016, p. 118 and n. 24).

³⁹ See above, Habachi 1972; Biston-Moulin 2011.

⁴⁰ Habachi 1972, p. 29.

⁴¹ Habachi 1972, p. 29.

⁴² *Wb.* I, 28 and CD, 8.

⁴³ *Wb.* V, 426 and CD, 310.

⁴⁴ Traunecker 1979, pp. 22–28.

⁴⁵ Frood 2013, p. 285.



Fig. 4. Man in adoration graffito, a. detail; b. drawing. © CNRS-CFEETK n° 53139, A. Chéné; Habachi 1972, p. 29, fig. 16.

Moreover, other similar examples of individuals in adoration were found in the east wall of the court of the Seventh Pylon and at the top of the staircase in the Eighth Pylon, north wall. One depicts a figure that is probably a priest or a scribe with arms upheld, dating to the Ramesside or Third Intermediate Period based on costume.⁴⁶ The other graffito, made in a more formal setting, represents Amenemope, who was part of the staff of the High Priest of Amun Roma (late 19th dynasty).⁴⁷ This high-ranking official was also known from a stela now in Leiden, where he is represented as an intermediary between the gods and a low-ranking official of his staff and his wife.⁴⁸

⁴⁶ It is addressing probably a criosphinx dating to Merenptah or Ramesses II. E. Frood and C. Salvador, personal communication 3 August 2020; see also PM II, 131 (482) wrongly described as “sphinx protecting Ramesses IX” (C. Salvador, personal communication 28 September 2020). For a detailed analysis of these graffiti, see Salvador 2019.

⁴⁷ Frood *et al.* 2020, p. 4.

⁴⁸ Traunecker 1979, p. 29; Boeser 1913, p. 12, Plate XXIII, no. 43.

The aim of the author of the K2 graffito seems fairly clear: to perform an eternal act of adoration. As van Pelt and Staring observed, “graffiti of figures in poses of adoration, in particular, may be considered as prayers cast in pictorial form (...)”⁴⁹ The place selected was hidden from a frontal view, as many other graffiti in the temple were out of plain sight.⁵⁰ Nevertheless, its location can provide an additional hypothesis. As mentioned above, the graffito is located inside a pre-existing royal cartouche, which in some way acts as a frame for the image, encircling it. It seems like the author decided to carve it in that specific place, considering that there was enough space on that side of the stela to make the figure. Thus, the graffito is connected intrinsically with the material support where it was incised. A relation to vestiges of pre-existing inscriptions could also be proposed. S. Biston-Moulin, when revisiting the original inscriptions on both sides of the stela — belonging to a door jamb of a former monument of Senusret I — mentions that they “présente un certain nombre de difficultés lié aux arasements subis au moment du remploi par Kamosis et à la mauvaise conservation de cette partie de la pierre.”⁵¹ There is no evidence that the graffitist prepared the surface for incising the graffito, instead it seems he took advantage of pre-existing features. Cruz-Uribe mentioned that there were boxes surrounding certain textual graffiti. Unfortunately, no satisfactory explanation was found for this specific aspect,⁵² but, in the case of the stela’s graffito, a highly speculative question can be posed: did the graffitist want it to resemble a votive stela? If so, the appropriation of existing elements was useful in reinforcing his aim of performing the act of adoration, despite there being no traces of other elements in relation to the figure. As mentioned above, the graffitist decided to incise his figure inside a royal cartouche of a former king, whose name had already been erased by that time. The complex use of new and pre-existing elements is revealed, whereby the graffitist served his own purpose. This integration of graffiti and their material support is also revealed in other examples of adoration scenes. The graffito of the priest Amennakht son of Ipuy, in western Thebes, represents him in an adoration posture oriented towards a crack in the rock, probably interpreted as the threshold between this life and the netherworld.⁵³

No clues can be found about who could be the addressee of the act of adoration on K2; thus, I can only offer a hypothesis in this regard, following Traunecker’s statement on the possibility of other gods or high rank figures acting as intermediaries. The figure is facing to the right, addressing itself towards the front of the stela, where the text is placed. Consequently, links can be established between them. As already mentioned, Habachi considered that the act of adoration was dedicated to Kamose because of his great achievements as a military leader; however, if the narrative mentions Amun as the deity who was venerated by Kamose, and the author was probably an individual belonging to the staff of the temple, then the final addressee of the action could have been the god and Kamose, the son of Amun, an intermediary between the petitioner and the main god.

⁴⁹ van Pelt and Staring 2019, p. 8.

⁵⁰ Traunecker (1979, pp. 26–27) mentioned that most graffiti in the temple were made on “les parois des obscurs escaliers desservant les pylônes, lieux discrètes et modestes, mais garantissant néanmoins aux graffiti une durée devant Amon égale à celle du monument de pierre.”

⁵¹ Biston-Moulin 2011, p. 81.

⁵² Cruz-Uribe 2010, pp. 1–2.

⁵³ Dorn 2014, p. 66.

As mentioned above, the making of this graffito could have taken place while the stela was standing somewhere inside the temple; thus I propose a suitable *terminus ante quem* late in Ramesses II's reign or slightly later, before the stela became a foundation block and disappeared from sight.

The Tilapia Nilotica (boliti) Fish with Buds of Lotus Flowers in its Mouth

In contrast to the man in adoration, this graffito is carved on the main surface, close to the representation of Neshi. It is approximately 2.5 cm high × 6.5 cm wide (Figs 5a and b). The *Tilapia* fish is a well known motif in the arts and crafts of ancient Egypt, and there were objects of diverse materials that took its shape from Predynastic times onwards.

The link between the fish and the lotus flower has diverse layers of meaning and several components. The *Tilapia* possesses a special reproductive behaviour. It guards the fertilised eggs in its mouth, incubating them there until they hatch. Moreover, the progeny is kept in the fish's mouth in case of a risk to survival. This fish inhabits ponds where lotus plants also grow, feeding on micro-organisms like zooplankton. When the fish is feeding, it seems like the stems of the plants are coming from its mouth. The blue lotus flower, which grows in ponds inhabited by *Tilapia* fish, opens during the morning and closes at night and was associated by the ancient Egyptians with the rebirth of the god Re every morning. This natural scenario — the particular characteristics of the incubation process of the *Tilapia* and its habitat where lotus plants grow — was conceived as a representation of the concepts of fertility, birth, rebirth and regeneration by the ancient Egyptians, commonly linked to the deceased, with the meaning of *mꜣꜥ-hrw* “justified.”⁵⁴ The motif is carved and/or painted in diverse contexts — on tomb walls; on rocks along desert routes; on diverse objects; and in the so-called blue faience marsh bowls which reached the Levant and Cyprus from the New Kingdom period onward.⁵⁵ Nevertheless, the K2 graffito is unique among the corpus from the temple of Karnak.⁵⁶

In a contribution published in 1966, I. Wallert had already proposed that this specific graffito was related to the original carved image of the “overseer of sealed things” Neshi, the official in charge of erecting the stela at Karnak, as a symbol of renewed life and rebirth “for the deceased”:

Dass die Blüte, die selbst zum Symbol des entstehenden Lebens geworden ist und die an der Nase des Toten diesem neuen Lebensatem vermitteln konnte, die wiederbelebende Kraft der *Tilapia* unterstreichen und verstärken sollte, steht wohl ausser Zweifel. Nur in diesem Sinn wird man die *Tilapia* mit der Lotuspflanze deuten können, die auf der berühmten Kamosestele neben die säuberlich reliefierte Figur des Verstorbenen in flüchtiger Zeichnung gesetzt worden ist.⁵⁷

Habachi correctly pointed out, however, that the stela was not a funerary monument (Neshi was not deceased at the time it was erected in the temple) and gave another explanation for this particular graffito, while still maintaining the link between the motif and the carved figure of

⁵⁴ Roehrig *et al.* 2005, p. 177. See also Zivie-Coche 2009, p. 548 and Darnell 2013, p. 46 n. 322 and bibliography cited there.

⁵⁵ Peltenburg 2007, pp. 378–381.

⁵⁶ E. Frood and C. Salvador, personal communication 3 August 2020.

⁵⁷ Wallert, in Dambach and Wallert 1966, pp. 293–294.



b

Fig. 5. “*Tilapia Nilotica* fish with buds of lotus flowers in its mouth” graffito, a. detail; b. drawing.
© Luxor Museum; Habachi 1972, p. 30, fig. 18.

Neshi.⁵⁸ He compared it to a composition from the tomb of Kheruef (TT 192),⁵⁹ where *Tilapia Nilotica* fish and lotus buds appear in a scene where Kheruef is awarded a golden necklace by the king. He suggested that the graffito could represent that privileges were granted to Neshi.⁶⁰

Nevertheless, the scene of the tomb of Kheruef and the graffito are quite different.

A. Fakhry gave a description of the representation in Kheruef's tomb:

In front of the baldachin there are two tables on one of which are four necklaces while on the other are fishes, birds and flowers. According to the text, these objects are of gold and were presented by the King to the different officials and nobles on the occasion of his first Heb-Sed feast.⁶¹

Unfortunately, Fakhry did not provide a figure. A later publication of the tomb of Kheruef made by the Oriental Institute of the University of Chicago includes a good photograph and drawing of the representation.⁶² As mentioned by Fakhry, the context is the celebration of the Sed-festival of the king. The two tables mentioned are represented and *Tilapia* fish, birds, lotus flowers and

⁵⁸ Habachi 1972, p. 30.

⁵⁹ PM I, pp. 298–300.

⁶⁰ Habachi 1972, p. 30.

⁶¹ Fahry 1943, p. 491.

⁶² OIP 1980, pls. 29 and 30.

buds are heaped upon one of the table's surface, but the scene is certainly not like the graffito of K2. Again, the context of the graffito was completely different: as Habachi recognised, the stela is not a funerary monument but a commemorative and votive one, and it was erected in a temple not in a necropolis. What could be the reason for incising a graffito whose basic characteristics are related to the deceased and not to the usual actions performed in a temple?

As in the case of the man in adoration, only hypothetical explanations can be drawn, based on a consideration of the physical location of the stela (a sacred space, the temple); its exhibition and further transformation into a foundation block; the moves of the colossus where it was found; the kind of object it originally was (a commemorative and votive stela); the narrative and the actors who are mentioned or represented in it; and, finally, the graffito's own features (type, location, spatial orientation, topic, elaboration, etc.)

A creation on the main surface of the stela reveals that the graffitist was not apprehensive about visibility. In addition, the graffito was made in a clumsy way, as if the author were in a hurry. The fish is oriented towards Neshi, and this orientation may give clues about the personal motivation of the author in making it in that specific place. It should be noted that this section of the stela was not the only place where there was enough space to incise a graffito without overwriting the original; the lunette has clear zones where a graffito could have also been recorded, as well as both sides of the monument. Reaching the upper parts of the stela was also possible, as the location of the man in adoration graffito reveals. But the author decided to make it in the bottom left. The relationship between the graffito and Neshi suggests that the graffitist expected to give him extra protection, ensuring his eternal life, as Wallert proposed long ago.


But the question that arises is who became interested in granting eternal life to Neshi — and why and when. The last line of the stela has a statement in the future tense: "I will perform every assignment to the satisfaction of the king."⁶³ Thus, as mentioned above, Neshi was alive when the stela was placed in the temple. This fact raises the possibility that he also served during the reign of Kamose's successor, Ahmose.

The only title registered beside the carved image of Neshi is $\overline{\text{Q}}$ *jmj-r htmt* "overseer of sealed things".⁶⁴ In analysing this title, P. Vernus proposed that it applied at different levels in the administration — local, regional, central — and that to determine the position of a subject holding that title, the rest of their titles should also be considered. If all the titles of Neshi are taken into account — his full titulary is registered in lines 36–37, where several ranking status titles (*jrj-p't*; *h3tj-ε*; *htmt-bjtj*) appear — this "overseer of sealed things" held one of the highest positions in the administration during Kamose's reign.⁶⁵ Precisely, Kamose is revealed to have held Neshi in high confidence at the moment of ordering him to make the monument and allowing him to carve his figure on it.

⁶³ Redford 1997, p. 15.

⁶⁴ I follow Grajetzki's (2013, p. 238) reasons for preferring the translation "overseer of sealed things" instead of "chief treasurer." He states that "In Egyptological literature, the 'overseer of sealed things' is most often called 'treasurer,' sometimes 'chancellor' or 'chief treasurer'. To avoid confusion with the 'treasury' (*pr h3d*), here the translation 'overseer of sealed things' is used. Note that the 'chief' in 'chief treasurer' is just an interpretation of the position of these officials. The title itself (*imy-r htmt*) is in the central administration, the provincial and private administration the same." The "overseers of sealed things" oversaw the resources, and one of their duties was sending expeditions in search of raw materials (Grajetzki 2013, p. 226).

⁶⁵ Vernus 1994, p. 259; Shirley 2013, p. 552.

S. Allam, in analysing The Inscription of Mes, who was a contemporary of Ramesses II, implied that the ancestor of Mes mentioned in the lawsuit, an  “overseer of ships” named Neshi, who had been rewarded by king Ahmose with lands for his actions during the Hyksos wars, was the same Neshi mentioned in the stela of Kamose.⁶⁶ Nevertheless, the Inscription of Mes does not preserve any title other than “overseer of ships.” Considering the high position held by the official who oversaw the making of the stela, it is difficult to consider that both individuals were the same person. The titles and social position of Neshi revealed in K2 are far from the humble “overseer of ships” mentioned in the Inscription of Mes. It is probable that the “overseer of sealed things” Neshi was an official who was well known to his contemporaries and an individual to be remembered through generations.

The reconstructed story of the stela reveals that it was selected as a foundation block for a colossus of Ramesses II and, as stated at the beginning of this contribution, that the colossus was probably moved at least once to a different position inside the temple. Thus, the base and the foundation blocks were also moved, the blocks “unearthed” and “buried” again. Considering the graffito was made in a clumsy way on the main surface of a monumental royal stela, and that its meaning is not addressed to an intermediary or the main god but seems to grant the quality of “justified” to Neshi, I propose — without ruling out the possibility that the graffiti was carved during the time the stela was located in its original position inside the temple — that this graffito could have been made during the works on the base of the colossus, when it became a foundation block, or even during the later moves. Who was the author? It was probably an individual serving in the temple who was inspired to ensure Neshi had a prosperous afterlife, despite the long time span between his death and the making of the graffito. For unknown reasons, the author decided to grant eternal life to a well-known official who served the Theban ruler(s) in troubled times.

Final Remarks

K2 features two incised graffiti, one on its left side and the other on the main surface. Both are figural: one represents a man with his arms outstretched in adoration, and the other represents the well-known motif of the *Tilapia Nilotica* fish with buds of lotus flowers in its mouth.

Their presence on the stela demonstrates that people continued to interact with the monument after it had been erected in the temple, and even beyond that. In comparing the two graffiti, they are different in many ways. Even though both are incised and figural, one is the representation of a man, adoring or praising the god, probably through an intermediary, while the other is a symbol commonly related to the concepts of fertility, birth, rebirth and regeneration, and usually linked to the deceased. Taking into account not only the intrinsic features of both graffiti (crafters’ skills, location, orientation, topic) but also extrinsic circumstances and contexts (the object on which the graffiti were recorded — the stela; the place where the stela was erected — the temple; the content of the stela; the moves of the colossus with which the stela was found; and the audiences to whom the graffiti were probably addressed — King Kamose, the god Amun and the “overseer of sealed things” Neshi), I have proposed several hypotheses as regards who could have made those figures, what their possible reasons were and when the graffiti might have been made.

⁶⁶ Allam 1989, p. 104, n. 7.

The graffiti were probably incised by members of the temple staff or others who served there. Their position and orientation on the monument also reveal that the two graffitists had different goals. The person who made the man in adoration probably wanted to mark his own presence through the action of staying there for ever and ever, praising/adoring the god eternally; the other made a graffito in a clumsy way and sought visibility to make a clear statement granting eternal life to the “overseer of sealed things” Neshi after his death, probably as an acknowledgement of an official who served the Theban ruler(s) during difficult times.

The adoring man graffito was probably made during the time the stela was in its original location inside the temple. Without completely discarding the same possibility for the fish graffito, its characteristics — its uniqueness, the awkward way it was made, its meaning and its position on the stela — have led to the consideration of an alternative scenario. Taking into account those specific features, I have proposed that it could have been incised during the works on the base of the colossus — when the stela became a foundation block — or even later, when the stela was unearthed during the further moves of the statue. It seems as if the author saw the chance of granting Neshi the quality of “justified” and took advantage of it.

In short, these figural graffiti reveal that the monument was able to participate in social practices related to the complex Egyptian system of beliefs and demonstrate how people continued interacting with the characters carved in the original later in time.

Abbreviations

- CD = Faulkner, R. 1991. *A Concise Dictionary of Middle Egyptian*, 7th ed. Oxford: Griffith Institute.
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What is פֶּשֶׁר of פֶּשֶׁר in Qumran Hebrew?

Takamitsu MURAOKA

Abstract

In a substantial quantity of non-biblical Qumran texts classified as pesher literature, the Hebrew word פֶּשֶׁר is the key word. Here we are not concerned with a purely lexical, semantic question: what does the substantive, פֶּשֶׁר, mean? Our interest is in aspects of its syntax and syntagmatics: this latter represents an interface between syntax and lexicography. We shall look at these aspects under two headings. Under A) we deal with patterns in which a substantive appears with no conjunctive pronoun or possessive suffix attached, but in the st. cst., and under B) we deal with patterns in which a substantive has a 3ms suffix, -וֹ, attached, thus in the form of פֶּשְׁרוֹ.

A) פֶּשֶׁר in the st. cst.

The first pattern to be mentioned is פֶּשֶׁר הדבר אשר, which is a formula used when a commentator has in mind not a particular word or short phrase as his lemma, but a general thought he believes is expressed in his biblical text. The conjunction אשר introduces a fully fledged, content clause. We have here a nominal clause: <Subject - Predicate>. For example, פֶּשֶׁר הדבר אשר לֹא יִכְלֶה אֱלֹהִים אֶת עַמּוֹ בְּיַד הַגּוֹיִם “the meaning of the text is that God will not annihilate His people at the hands of the gentiles” 1QpHab 5:3, in reference to Hab 1:12 למשפט שמתו וצור למוכיחו יסדתו (MT להוכיח for למוכיחו). See also 4Q162 i 2, 4Q174 I-4 6.

A 1) פֶּשֶׁר הדבר על

This is a variant on the formula to be touched on below under B 1), and here, too, what follows על is mostly a person or persons, for example, פֶּשֶׁר הדבר על הכוהן הרשע לשלם לו את גמולו “the scripture concerns the wicked priest: it is up to him to pay his recompense” 1QpHab 12:2.¹ A rare, inanimate referent is exemplified in פֶּשֶׁר הדבר על כול פסלי הגוים “.. all the idols of the nations” 1QpHab 12:12.²

The fact that the exegesis mostly goes over animate referents implies that פֶּשֶׁר הדבר does not refer to the animate referent in question, but to the biblical text or to the thought which the commentator thinks lies behind it.

¹ The subject of the infinitive is not anyone else other than the wicked priest; he is the referent of לוֹ. Thus *pace* Lohse 1971, p. 243, for instance: “.. daß man ihm vergelten wird.” Nitzan 1986, p. 194 makes God the virtual subject of שלם. See Muraoka 2020a, p. 110, § 18 d, with footnotes 4 and 5 there.

² Is it extravagant to suggest that our commentator is scoffing at the view of pagans who believe that idolatrous images are living deities?

This is a variant on the formula A 1. What is prefixed with -ל refers to an inanimate entity. Here then we see a syntagmatic differentiation. It is attested in **פֶּשֶׁר הַדָּבָר לְאַחֲרִית הַיָּמִים לְחֹבֶת** “the matter concerns the end of the days, the drought³ in the land” 4Q162 ii 1; a scribal error for **עַל** is unlikely, occurring one after another. One wonders whether this differentiation in preposition belongs to the idiolect of this specific commentator on Isaiah. Basically the same feature turns up in another Isaiah commentary, 4Q163, see below at B 3).⁴ In one instance the two syntagms occur side by side and in keeping with this syntagmatic contrast: **פֶּשֶׁר הַדָּבָר לְאַחֲרִית הַיָּמִים עַל עֵדֹת דֹּרָשֵׁי הַחֲלֻקֹּת** “.. the end of the days, those who seek the smooth things” 4Q163 23 ii 10. In another 4Q Isaiah commentary, however, we again note the syntagm [**עַל** + pers.]: **פֶּשֶׁר עַל רֵאשֵׁי שְׁבֵטֵי יִשְׂרָאֵל** 4Q164 I 4, **פֶּשֶׁר עַל שְׁנַיִם עֶשְׂרִי** ib. 7.

This is a fixed formula, not modified by any preposition to connect with what follows; the conjunctive pronoun is always ו- irrespective of the grammatical gender and number of the lemma in question. Thus the pronoun is not referring to a specific noun, but to the Hebrew *text* concerned.⁵ It is thus similar to פֶּשֶׁר הַדָּבָר mentioned above under A). But the similarity ends there. The two are syntactically distinct. פֶּשֶׁר הַדָּבָר is part of a nominal clause, but what follows פֶּשֶׁר constitutes a self-standing clause unlike an אֲשֶׁר-clause that follows פֶּשֶׁר הַדָּבָר. פֶּשֶׁר here is like a section label: “the meaning of the text, i.e.”⁶ For example, פִּשְׁרוֹ רֹכְבָהּ הֵם גִּדּוּדֵי חִילוֹ, נָעַר חֵית קָנָה < 9 3 Q16 פֶּשֶׁר חֵית קָנָה Nah 2:14; וְהִבְעֵרְתִּי בַעֲשָׂן רֶכֶבָּהּ 3-4 i 10 Q169 גָּעַר חֵית קָנָה Ps 68:31.⁷ In פֶּשֶׁר שְׁלוֹשֶׁת מִצּוּרוֹת בְּלִיעֵל “.. three snares of Belial” CD 4:14 the lemma consists of three substantives, and this is the only occurrence of the substantive פֶּשֶׁר in this document. The independent, 3pl pronoun, either הֵם or הֵנָּה, may be understood at the end or the beginning. The text being referred to is פֶּחַד וְפִתְחָת וּפָחַ “terror and pit and snare” Isa 24:17. The construction preferred by the author of CD appears to be a tripartite nominal clause with a pronoun in the middle as in הַתְּנִינִים הֵם מַלְכֵי הָעֵמִים וְיִינָם הוּא דְרִכְיָהֶם וְרֹאשׁ הַפִּתְנִים הוּא רֹאשׁ מַלְכֵי יוֹן CD 8:10f. // חֻמַּת תְּנִינִים יִינָם וְרֹאשׁ פִּתְנִים אֲכוֹר Deut 32:33. Another seven examples of this construction are attested in CD: 4:2, 3, 19; 6:4 (twice), 7, 8.

At ירושלם הקריה היא **1QpHab 12:7** our commentator is focusing on a specific lexeme in his bible text **קריה וכל־יִשְׁבֵּיהָ** **Hab 2:17b**. But the suffix pronoun **י־** cannot refer to **קריה**,

³ Qimron 2018, p. 110 (B 3.1), counts this as one of quite a few instances attesting the phonetic weakening of ר and its eventual omission in writing; thus חובת = חורבת, that is, חֶרְבַּת. The word can signify “destruction,” that is, a consequence of drought.

⁴ Bernstein 1994, p. 651b holds that they, including 3Q4, are all independent documents, though not demonstrating his position. Cf. also Brooke 2018, pp. 153f.

⁵ This reminds us of the use of **כָּתוּב** “written” in Mishnaic Hebrew as **עָלָיו הַכָּתוּב אוֹמֵר**, followed by a quote of Jer 17:7, “the (well-known, following) scripture is referring to such a person” Peah 8:9, an example of Mishnaic **פֶּשֶׁר**.

⁶ Cf. Muraoka 2000, § 36 (10) with a fn. there.

⁷ Given the extremely fragmentary nature of the text it is uncertain whether 1Q30 1.6 constitutes an exception to the rule in question.

a feminine noun; it must mean “the lemma,” and we should note the addition of the definite article, precisely as in the first biblical example of dream interpretation (פֶּתְרוֹן) in שְׁלֹשֶׁת הַשָּׁרְגִים (פֶּתְרוֹן) in Gen 40:12 with reference to שְׁלֹשֶׁת שָׂרִיגִים vs. 10;⁸ note the article added by our commentator also in חֲמֵס לְבָנוֹן וְכֶסֶף וְשֹׁד 1QpHab 12:3 as against חֲמֵס לְבָנוֹן וְשֹׁד in פֶּתַי יְהוּדָה Hab 2:17a. Likewise פֶּשֶׁר הֵם כָּל הַכְּתָיִם 4Q169 1-2 3 < גֹּזֵר בֵּינָם Nah 1:4, where the articular plural accords with the Tiberian vocalisation of Nah 1:4, but it is significantly resumed by the pl. הֵם. Very interesting is פֶּשֶׁר הָאֵר אֶפְרַיִם דּוֹרְשֵׁי הַחֲלֻקֹּת 4Q169 3-4 ii 2, a commentary on הָאֵר, where, however, the MT reads הָאֵר Nah 3:1 with an anarthrous, indeterminate noun phrase. One might venture a slightly paraphrastic translation: “in interpreting this scripture ‘a murderous city’ can be said to apply to the city of Ephraim”; ו- refers to the biblical text, whereas the fem. היא refers to עִיר, a feminine noun in the text.⁹ See further פֶּשֶׁר קוֹאֵי יְהוּדָה הֵם יִרְשׁוּ אֶרֶץ 4Q171 1-2 ii 4 < Ps 37:9. Also in פֶּשֶׁר מְדַמֵּי קְרִיָּה וְחֲמֵס אֶרֶץ 1QpHab 12:7 < “Interpreted, city refers to Jerusalem” slightly adapted from קְרִיָּה וְחֲמֵס אֶרֶץ Hab 2:17b as quoted a few lines earlier. In these cases, פֶּשֶׁר is a discourse marker signalling the commentator’s thought about to be presented, and grammatically or syntactically it is not a constituent of the following clause. The sequel with פֶּשֶׁר omitted makes this all the clearer: in חֲמֵס אֶרֶץ הֵם עִיר יְהוּדָה 1QpHab 12:9 חֲמֵס אֶרֶץ cannot be the grammatical nor logical subject, for חֲמֵס resumes אֶרֶץ, not חֲמֵס אֶרֶץ. What is meant is: “in the lemma חֲמֵס אֶרֶץ, חֲמֵס signifies towns of Judaea.”

In ואֲשֶׁר אָמַר קְצוֹת עַמִּים רַבִּים וְחוֹטֵי נַפְשָׁה פֶּשֶׁר הוּא בֵּית הַמִּשְׁפָּט אֲשֶׁר יֵתֵן אֶל אֶת מִשְׁפָּטוֹ בְּתוֹךְ 1QpHab 10:3 // קְצוֹת-עַמִּים רַבִּים וְחוֹטֵא נַפְשָׁה Hab 2:10 we have no tripartite nominal clause, but פֶּשֶׁר as a discourse marker followed by a bipartite nominal clause which opens with the pronoun הוּא: “that [= קְצוֹת עַמִּים רַבִּים וְחוֹטֵי נַפְשָׁה ‘the confines of many nations and the bonds of thine own soul’¹⁰] is the place of sentence, that is, where one is to live out the sentence brought down.”¹¹ We should note that the ms pronoun, הוּא, refers to a combination of two noun phrases, both plural.¹²

B 1) פֶּשֶׁר עַל

This is the most frequent formula introducing an interpretation, 131 out of a total of 166 occurrences of פֶּשֶׁר, including partly or wholly reconstructed cases (according to the Accordance Bible).

הַנִּגְנִי מְקִים אֶת-הַפְּשָׁדִים הַגּוֹי < 1QpHab 2:12 “the text concerns the Kittim” חֲמֵס אֶרֶץ Nah 1:6. Our commentator focuses on a particular word in his biblical text, saying that the prophecy communicated to the ancient prophet finds a modern application and suggesting

⁸ Similarly Gen 40:18 // vs. 16, ib. 41:26 // vs. 18; ib. vs. 26 // vs. 22; ib. vs. 27 // vs. 19; vs. 27 // vs. 23, so also in Biblical Aramaic at Dan אֶלֶין חִינְתָּא רַבְרָבָא 7:17 // אַרְבַּע חִינְן רַבְרָבָא vs. 3.

⁹ Our commentator most likely knew that the prophet was going on the doomed city of Nineveh; Ephraim was, in his view, the latter-day Nineveh. See also פֶּשֶׁר אֲמוֹן הֵם מְנַשֶּׁה וְהַיָּאֲרִים הֵם גְּדוּלֵי מְנַשֶּׁה 4Q169 3-4 iii 9 < הַיָּאֲרִים מִיָּם סָבִיב לָהּ אֲשֶׁר חִלָּה יָם < 4Q169 3-4 iii 11 Nah 3:8, and אֲמֹן הַיָּשָׁבָה בַּיָּאֲרִים

¹⁰ So Brownlee 1979, p. 158. See also Nitzan 1986, p. 186 ad loc.

¹¹ אֲשֶׁר that follows is loosely used with a locative value, *where*, for which Brownlee 1979, p. 161 finds another example at 1QpHab 12:9.

¹² Qimron 2018, p. 349 (§ E 3.2.5, 1) also analyses קְצוֹת here, קְצוֹת in 1QpHab 9:14, as a plural substantive, not a Qal infinitive construct.

that the contemporary Kittim are latter-day Chaldaeans. Though the biblical lemma has not been preserved, one could see a similar approach in **פֶּשֶׁר עַל כּוֹל עוֹשֵׁי הַתּוֹרָה בְּבֵית יְהוּדָה אֲשֶׁר יִצִּילֵם** 1QpHab 8:1 < **יְהִיָּה** > Hab 2:4; here the reader is told what sort of people God regards as righteous and meriting rescue. In **פֶּשֶׁר עַל הַכְּתִיָּאִים אֲשֶׁר פָּחַדְם וְאִימָתָם עַל כּוֹל הַגּוֹאִים** 1QpHab 3:4 the commentator characterises the Kittim with **אִימָה**, deriving the substantive from the adjective **אִים** in the biblical text — **אִים וְנוֹרָא** — Hab 1:7.¹³

Cf. also 1QpHab 5:9, 7:4, 8:8, 9:4.

When **פֶּשֶׁר עַל** is followed by a noun phrase, as exemplified above, the latter is mostly a person or persons.¹⁴ A couple of additional examples are **פֶּשֶׁר עַל רֹאשֵׁי שְׁבֵטֵי יִשְׂרָאֵל** 4Q164 I 7; **פֶּשֶׁר עַל דּוֹרְשֵׁי הַחֲלֻקֹּת** 4Q169 3-4 iii 3; **פֶּשֶׁר עַל בְּלִיעַל** 11Q13 2 I2. A rare exception is **פֶּשֶׁר עַל כּוֹל** 4Q180 I I and **פֶּשֶׁר עַל הַקְּצִים אֲשֶׁר עָשָׂה אֵל** 4Q171 I-2 ii 6. That **פֶּשֶׁר עַל** do not belong here is evident in the use of **פֶּשֶׁר** in st. abs., with no pronominal suffix attached; in both cases it is the first word of the title of the following discourse — “A pesher on the times which God appointed” and “A pesher on Azazel and the messengers who ..”.

In 1QpHab 4:5 the underlying biblical text uses the sg. forms, **יִשְׁחָק** .. **יִתְקַלֵּס** in formal conformity with their grammatical subject, **הַגּוֹי** (vs, 6), which, however, is in apposition to **הַכְּשָׁדִים**. We have noted above that these ancient Chaldaeans are identified by our commentator with his contemporary Kittim, 1QpHab 2:12.

See also 1QpHab 6:10, 7:10, 11:4, 12; 1Q14 8-10 4; 1Q16 9-10 1.

B 2) **פֶּשֶׁר לְ-**

This is a variant on B 1 and comparable with A 2, quod vide. The only attestation is **פֶּשֶׁר לְ** **לְמַעוֹט הָאָדָם** “its interpretation concerns the small number of people [or: decrease of humankind]” 4Q163 4-7 ii 8.¹⁵ Here, too, what is governed by the preposition **לְ-** is inanimate.

B 3) **פֶּשֶׁר אֲשֶׁר**

This is a variant on A) **פֶּשֶׁר הַדְּבָר אֲשֶׁר**; the conjunctive pronoun refers to the text (**הַדְּבָר**) under discussion. For example, **פֶּשֶׁר אֲשֶׁר יִלְעִיגוּ עַל רִבִּים וּבִזּוּ עַל נֹכְבָּדִים בְּמַלְכִּים וּשְׂרָרִים יִתְעַתְּעוּ** “what is meant is that they will mock at great people and despise honourable people, they will make fun of kings and princes and laugh at a great army” 1QpHab 4:2. Similarly 1QpHab 5:7, 6:3, 6, 7:7, 15; 4Q166 ii 12; 4Q252 iv 5.

¹³ The Septuagint reads ἐκ πλεστεῶς μυσ. On this textual variation and this key “proof text” for St Paul’s soteriology, see Muraoka 2020b, pp. 103–105.

¹⁴ At 4Q163 4-7 ii 4 Strugnell 1970, p. 190 suggested **יָוִם** for **יָוִם**; Qimron 2013, II 268 mentions **הַיָּוִם** as a possible alternative reading.

¹⁵ According to Qimron (1998, p. 107, § B 1.3.3) **מַעוֹט** is a variant spelling of **מַעוֹט**.

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The *Damascus Document*: its Qumran fragments and the Cairo Geniza text syntactically compared¹

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In our recently published *A Syntax of Qumran Hebrew* (2020) the so-called *Damascus Document* (CD for short), בְּרִית דְּמֶשֶׁק in Hebrew, constitutes an important part of our corpus. Along with another Qumran document, the *Community Rule* (1QS), סֵפֶר הַיְחָד, we find here the fundamental philosophy of the Qumran community outlined.

By contrast, in his extremely important publication, *A Grammar of the Hebrew of the Dead Sea Scrolls* (2018), Elisha Qimron excludes the two Cairo Geniza manuscripts of CD out of his corpus on the ground that “their text was distorted by the copyists of the Medieval age and thus does not reflect the DSS language, especially in its orthography, phonology, and morphology.”² He defines the nature of this distortion as “.. the scribes of the Geniza manuscripts systematically (בשיטתיות) replaced the spelling (הכתיב) and the grammatical forms unique to the language of the scrolls with the spelling and forms known to them from the Bible and also to the spelling which was in circulation in their days” (our translation, TM).³ In other words, the scribes of the two Geniza manuscripts intended to present their text as written in Biblical Hebrew, though with occasional deviations in matters of orthography.

This article is an attempt to examine and determine the nature of variations between the Geniza manuscripts and the Qumran manuscripts of CD from morphosyntactic and syntactic perspectives. Was the Geniza text (CDG for short) distorted in the morphosyntax and syntax of its language as well?⁴

¹ Note the following abbreviations used in this article:

BDB = Brown *et al.* in Bibliography below.

BH = Biblical Hebrew

CBH = Classical Biblical Hebrew

CD = *Damascus Document*, בְּרִית דְּמֶשֶׁק in Hebrew

CDG = the Geniza version of CD

DCH = Clines in Bibliography below.

DJD = *Discoveries in the Judaean Desert*, published since 1955 at Oxford: The Clarendon Press.

JM = Joüon - Muraoka ²2006 in Bibliography below.

MH = Mishnaic Hebrew

QH = Qumran Hebrew

SQH = Muraoka 2020 in Bibliography below.

² Qimron 2018, p. 50.

³ Qimron 2020, I, p. 1. Qimron presumably means the orthography not typical of Biblical Hebrew.

⁴ Qimron (2020, I, p. 1) appears to assume that the medieval scribe(s) had access to CD in a form as we find in its Qumran fragments: “.. the Geniza fragment (A) was corrupted. The principal corruptions arise apparently from the

Leaving aside cases of plain scribal error adduced under H), we have identified a number of meaningful variations. These can be classified into several categories.

A) Adjustment to Biblical Hebrew

In the following case we can identify Geniza scribes of CD attempting to adjust QH to BH.

In *המבקר אשר לכל המהנות* 4Q266 10 i 1 > *המבקר אשר לכל המהנות* CD 14.8 the latter prefers the CBH form as in *הצאן אשר לאביה* Gen 29.9.⁵

B) Selection of Mishnaic Hebrew

Geniza scribes also show their preference for a typical MH form. For example, *למה יתפחה* 4Q266 8 i 2 > *שמה יתפחה* CD 15.11. The latter is unknown to QH and is typical of MH.⁶ According to *DCH* s.v. *שׁ*, p. 204a o, this is a hapax in the corpus defined for this dictionary.⁷

By contrast, in *עד אשר לא ישלמו את ימיהם* “before they complete their days” 4Q270 6 iv 19 > *עד לא ישלמו את ימיהם* CD 10.10 it is the form in 4Q270 that is typical of MH.

C) Atomistic approach

There has been found a case in which Geniza scribes varied a particular linguistic form in his *Vorlage* without viewing the form in question in the entire linguistic structure of QH. They probably did not have access to other Qumran documents.

The cases in question are *ויבחרו* 4Q266 3 iv 5 > *ויבחרו* CD 8.8; *ויוצוהו* “and he shall enjoin it” 4Q270 6 ii 7 with a conjunctive *waw* followed by *וילמדוהו* and presumably following *יודיעהו* > *יודיעהו* CD 15.14, where the scribe is not consistent, either. Shifts between inversive and conjunctive constructions that are inexplicable are frequent in QH.⁸

deletions due to the difficulty of reading the original from Qumran, which was before the scribes, who copied it first” (our translation: TM).

The Geniza fragments, A and B, can be consulted in Rabin 1958, Lohse 1986, Broshi 1992 and Qimron 2020. The text presented by Qimron, however, even where printed in black, is not identical with that of the two CD manuscripts. See an example mentioned below under B) ad CD 15.11.

The Qumran fragments number ten in all: eight 4Q fragments, all published in *DJD* 18 (Oxford, 1996) ed. J. M. Baumgarten on the basis of transcriptions by J. T. Milik. They are 4Q266, 4Q267, 4Q268, 4Q269, 4Q270, 4Q271, 4Q272, 4Q273. In addition there are 5Q12 and 6Q15, both published by Milik in *DJD* 3 (Oxford, 1962).

In García Martínez and Tigchelaar 1997 and Qimron 2020 we can consult both corpora of our document.

⁵ In *SQH* § 27 ba the references to 4Q266 and CD have been inadvertently reversed. On this feature in BH, see JM § 130 e.

⁶ Segal 1927, p. 147. Note also *SQH* p. 231, n. 2. Broshi ad loc. writes that the 4Q266 reading “is less likely.” Epigraphically? Linguistically no problem. Qimron 2020, I, p. 38 has adopted *למה*.

On *למה* as equivalent to *למן*, see *SQH* § 31 v 4c, where on p. 231, f.n. 1, the reference to CD 15.11 is to be corrected to 4Q266 8 i 2. Strangely we see no record of the form in CD in Abegg *et al.* 2003.

⁷ In Qimron 2020, I, p. 38 the reading in CD has been relegated to a footnote.

⁸ For a discussion on this issue, see *SQH* § 16 e.

D) Ambiguity in a linguistic analysis on the part of Geniza scribes

It is anybody's guess who Geniza scribes learned Hebrew from. We encounter cases in which both text forms agree with the BH model, but they would mean different things. For example, *מסיגי הגבול* 4Q266 3 ii 7, *מסיגי הגבול* 4Q267 2.4 > *מסיגי הגבול* CD 5.20; did the scribe have any particular group in mind or is the article generic in value?⁹

אחר בהמה “after an animal” 4Q271 5 i 2 > *אחר הבהמה* CD 11.5. Is the articular form meant to indicate an object contextually determinate (*SQH* § 7 d)? In any case the feature has nothing to do with historical or dialectal distinctions. Likewise *עני ואביון* 4Q266 10 i 7 > *עני ואביון* CD 14.14.

In one case the QH feature changed by CD scribe(s) appears elsewhere in CD. Thus in *כי אנשים* 4Q266 2 i 13 > CD 1.8 *כי אנשים אנשים*. In CD is functioning as an adjective, whereas in 4Q266 it is either the same or a substantivised adjective. However, we find *אשם* on its own in *אם עבר אשם הוא* “if he trespassed, he is guilty [or: a guilty person]” CD 15.4, and without *איש*. The word is not very common in BH and in QH, only thrice in both. Note that here as well as in 4Q266 we have a simple bipartite nominal clause with a separate pronoun as its subject and in the same word order. In its three occurrences in BH the word is never used as an attributive adjective, but on its own: Gen 42.21, 2Sam 14.13, Ezra 10.19. There is no absolute need to analyse the form in 4Q266 as substantivised, for example, *אֲשָׁמִים אֶנְחֵנוּ עַל־אֶחָיוֹנוּ* “we are guilty over our brother” Gen 42.21. On the question of substantivisation of adjectives, see *SQH* § 9 b.

E) Alternative view

In the case of *ויתנו* “and it shall be handed” 4Q266 10 i 6 > *ויתנו* CD 14.13 can be only a *w-qatalti* form, and not “and they gave,” and the selection of this particular inversive construction becomes comprehensible only by analysing the only preceding verb, *להכין*, as having injunctive value, “one shall prepare.” BH does know instances of the syntagm <inf. cst. - *w-qatalti*>, *בְּיוֹם צֵאתְךָ וְעִבְרָתְךָ* “when you go out and then cross” 1Kgs 2.37, and a QH example is *עד הגנף* *האויב והסבו עורפם* “until the enemies are hit and then retreat” 1QM 9.2.¹⁰ But then the finite verb is inversive. The CD version takes the two actions, preparing and handing, as consecutive. The other version, however, apparently did not find it necessary to underline the consecution, but took the two actions as coordinate. Hence the *waw* of *ויתן* is conjunctive, *וַיִּתֵּן*, not *וַיִּתֵּן*.

In *כול אשר הובא* 4Q266 3 ii 17 > CD 6.11 *כול אשר הובא*, so also CD 20.25 *כול אשר פרצו*, CDG underlines the notion of totality, whereas 4Q266 focuses on that of individuality, “every single person.” In both, the referent is personal. In *איכה יוכל כול* “who on earth could?” 1QH^a 7.27 we have a rhetorical question, which renders *כול* equivalent to its frequent use for categorical, absolute negation. Cf. *SQH* § 28 a.

⁹ On *מסיגי הגבול* 4Q271 1.2 Qimron (2018, I, p. 12, f.n.) is justly sceptical that this belongs to CD, for the fragment has only two short incomplete lines with a total of four words. On the grammatical issue in question, see *SQH* § 7 a, c.

¹⁰ For a discussion of this feature with more examples in BH and QH, see JM § 119 o and *SQH* § 16 bb.

In QH the articular הכול shows the plural concord only: הכול יהיו ביחד אמת “all (members) shall be in the community of truth” 1QS 2.24; ונשאלו הכול על דבריו “they all shall be questioned about his words” 1QS 6.15. We note that BH differs from QH in this matter. Thus sg. כל הבאיש “everyone felt ashamed” Is 30.5 as against pl. וְתָמוּ כָל “they all perished” Jer 44.12. Cp. הפל באו לָכֶם Josh 23.14 (rei) // הכל בא ib. 21.43.

In the variation ירחם עליהם “let him have pity on them” 4Q267 9 iv 5 > עליהם CD 13.9 are Geniza scribes saying that the focus on עליהם, if intended, can be sufficiently marked by reading it at a higher pitch, whereas the 4Q text intends to indicate the focus in writing as well by using the marked, non-neutral word order?¹¹

F) Inconsistency

In some variations we observe inconsistency in CD, what is of course observable in QH as well in many matters. For example, כול הדבר “any matter” 4Q266 10 i 4 > כל דבר CD 14.11. The scribe of CD is either unfamiliar with this QH feature or is against it, though in the following clause he writes כל האדם “any person”¹² and also בכול לב ובכול נפש “with (his) whole heart and with (his) whole soul” CD 15.12 = 4Q266 8 i 3, so 1QS 5.8. Cf. *SSQ* § 28 c, ca.

G) Embarras de richesses

Some variations involve cases of two or more linguistic forms both or all of which are valid and more or less synonymous. It then becomes difficult to determine with certainty why one particular form has been chosen.

Since in BH “to enquire about” can be expressed with שאל לִי as well as with שאל על,¹³ it is not clear why in ישאלו על כול “they shall enquire about any matter” 4Q268 2.2 has changed to ישאלו לכל CD 14.6. But QH is not uniform, either: ישאלו לכול 4Q267 9 v 10, another version of CD 14.6.

Likewise אל דמשק 4Q266 3 iii 20 > הבא דמשק.¹⁴ QH plentifully attests to both syntagms, that is, direct rection and indirect by means of a preposition with verbs of physical movement.¹⁵ Hence either formulation is unproblematic, and the CD^a text can stand as it is.

Note also כול באים בבריתו 4Q266 3 iii 24 > כל באי בריתו CD 8.1. In the latter the participle is clearly marked as in the st. cst. followed by a prepositional phrase. Both structures are equally valid in QH. For BH cp. שבי פֶּשַׁע Is 59.20 with השבים מהגולה Ezra 6.21. Cf. *SQH* § 31 r 5 and JM § 121 n.

בסולם > בסולם ובחבל וכלי 4Q270 6 v 20 “with a ladder and with a rope and an instrument” 4Q270 6 v 20 > בסולם וכלי CD 11.17 and 4Q271 5 i 11. Though non-repetition of a preposition with concatenated

¹¹ On the question of the word order in the verbal clause, see *SQH* § 34 d.

¹² It is inconceivable that he should be unaware of a BH usage exemplified in כִּלְהֶעֶץ אֲשֶׁר־בו “every tree that is in it [= the garden of Eden]” Gen 1.29 and many other passages, cf. BDB s.v. כל 1 b and s.v. 7 יום f.

¹³ Cf. BDB s.v. שאל Qal 2 a.

¹⁴ Qimron (2020, I, p. 16) inserts ארץ after הבא.

¹⁵ Cf. *SQH* § 31 i.

coordinate prepositional phrases is commoner in LBH than in CBH, there is no rigid rule.¹⁶ Nor are we aware of any systematic study on the matter as regards MH.¹⁷

הַיּוֹם אֲשֶׁר יִפְקֹד אֵל > 4Q266 3 iii 25 CD 8.2, 19.15. Both constructions, that is, the presence or absence of a resumptive pronoun referring back to the antecedent of a relative clause, are valid in QH, cf. *SQH* § 44 a. Therefore it is not clear why Geniza scribes have left the pronoun out.

Both BH and QH are known for their extensive use of compound prepositions such as מֵאֵת and מֵעַל. They also use what we call pseudo-prepositions consisting of a standard preposition attached to a substantive, the latter often denoting a body part, for example, לְפָנַי and בְּעֵינַי. One wonders what motivated a change as in אֵל יִקְחוּ מִיֵּד יִשְׂרָאֵל “they shall not take from an Israelite” 4Q271 4 ii 13 > מֵאֵת יִשְׂרָאֵל .. CD 16.14. Both constructions are firmly established in MH as well as BH. On this question, cf. *SQH* § 10 b.

H) Scribal error

Some variations involve scribal errors on either side. Thus 4Q267 2.5 דְּבָרוֹ עֲצָה סָרָה > דְּבָרוֹ סָרָה CD 5.21; the first noun is hardly generic in an appositional clause as in אֵיִשׁ נָבִיא;¹⁸ the scribe of 4Q267 has inserted a vertical stroke after it, marking it as suspicious. Hence עֲצָה סָרָה would not mean “aberrant view” or suchlike.

Another likely scribal error is 4Q266 2 ii 11 קְרִיאִים שֵׁם > קְרִיאִי שֵׁם “those who are called by name” CD 2.11, possibly an error in 4Q266. Another instance of this CD phrase at 4.4 is not preserved in any 4Q fragment. Nor מְשִׁיחֵי רוּחַ קִדְשׁוֹ “those anointed with His holy spirit” CD 2.12. These are all cases of a passive participle expanded with a latent prepositional phrase. Thus קְרִיאִי שֵׁם = קְרִיאִים בְּשֵׁם.¹⁹

יִרְצָחוּ וְלֹהֲבִדִּיל > 4Q266 3 ii 23 CD 6.17. From the context the inf. cannot be an adverbial qualifier of the preceding finite verb. In the middle of a long series of coordinate *lamed*-prefixed infinitive constructs, the 4Q form is best explained as a scribal error, haplography.²⁰

Instances of errors in CD are מִבְּנֵי חֲמֵשׁ וְעֶשְׂרִים שָׁנָה “from twenty-five years of age” 4Q266 8 iii 6 and 4Q270 6 iv 17 > מִבְּנֵי חֲמֵשׁ וְעֶשְׂרִים שָׁנָה CD 10.6, a scribal error probably influenced by the preceding masc. noun. Note also מְשִׁיחֵי הַקֹּדֶשׁ CD 6.1 for מְשִׁיחֵי הַקֹּדֶשׁ 6Q 3.4; בְּרִית אֵל נֶאֱמָנָה “God’s covenant is trustworthy” 4Q267 9 v 4 > בְּרִית אֵל נֶאֱמָנָה CD 14.2. Another likely instance is וְיִתְעַם בְּתוֹהוּ לֹא דֶרֶךְ > 4Q266 2 i 18 CD 1.15, hence a haplography, that is, וְיִתְעַם בְּתוֹהוּ לֹא דֶרֶךְ, where CDG scribe(s) wrongly saw an equivalent of an attributive adj. and an appositional structure. On a rare negation in BH of a noun phrase such as הֵם קִנְאוּנִי הֵם בְּלֹא־אֵל כְּעֶסְוֹנִי בְּהִבְלִיָּהֶם וְאֲנִי אֶקְנִיאֵם בְּלֹא־עָם Deut 32.21, cf. JM § 160 *d* and *k*.

¹⁶ On this matter, see *SQH* § 38 e.

¹⁷ The pattern <a and b - c> is not one of the patterns identified by Azar 1995, p. 254–256, § 8.1.2.

¹⁸ On apposition, see *SQH* § 29 c.

¹⁹ On this phenomenon in which a prepositional phrase complementing a substantive may lose its preposition by the substantive being put in the st. cst., see *SQH* § 31 r 6.

²⁰ On the question of the repetition or otherwise of וְ or אוּ with concatenated coordinate terms, see *SQH* § 38 c.

I) Miscellaneous

In בית השתחוות אל > 4Q271 5 i 15 “a house for the worshipping of God” CD 11.22 the articular form in 4Q271 evidences the completion of substantivisation of the inf. cst. Cf. *SQH* § 18 a. Is the language community behind the Geniza manuscripts of the view that the process had gone too far to their liking?

In בְּנֵי יִשְׂרָאֵל שְׁלִישִׁים “the children of Israel third” 4Q267 9 v 7 the form שלשתם CD 14.4 testifies to the scribe’s inability to understand the text. As confusing is the immediately following והגר רביע if he meant “and the proselyte fourth.”

לְדַרְוֹשׁ אִישׁ אֶת שְׁלוֹם > 4Q269 4 ii 3 “to seek one another’s well-being” CD 6.23. The government with *bet* here is anomalous. The preposition is basically instrumental in value at בְּרוּ נִהְיֶה דְּרוּשׁ “Study with the mystery of that which emerges” 4Q416 2 iii 9.²¹ Is the 4Q269 case affiliated to cases of the rection with *bet* of verbs such as קָפַץ, מָאָס etc.²²

עָלִיו וְאוֹתוֹ יָקִים 4Q266 8 i 3 > CD 15.12. One cannot have here both אוֹתוֹ and עָלִיו. Is the CD scribe unsure which to choose?

יָמִים אֲשֶׁר לֹא בָאוּ > 4Q266 9 iii 17 CD 13.23. *DJD* 18.70 has adjusted the 4Q266 text in the light of the sg. verb, whereas the source text, Isa 7.17, reads: יָבִיא יְהוָה עָלֶיךָ וְעַל-עַמֶּךָ, which apparently has led Broshi to restore the pl. יָמִים at CD 13.23.²³

לֹא עִם בִּינוֹת הוּא > 4Q266 3 ii 4 CD 5.16. This is the sole instance in QH of לֹא negating a nominal clause, though it is not uncommon in BH, for example, לֹא אִישׁ דְּבָרִים אֶנְכִי Exod 4.10, הָיָה הַיּוֹם אִתָּה לֹא אִישׁ בְּשָׂרָה אִתָּה הַיּוֹם הַזֶּה 2Sam 18.20. The scribe of CD probably wanted to restore the source text, לֹא עִם-בִּינוֹת הוּא Isa 27.11, thus not preferring a BH syntactic construction.²⁴

Conclusion

- 1) Examples of variations in CDG which can be viewed as distortions in favour of the BH model are rare in the extreme. Under (A) only one such instance is mentioned.
- 2) In questions touching on morphosyntax and syntax the nature of variations in CDG vis-à-vis BH is too complex to be analysed in terms of value judgement such as distortion, which is negative in connotation.
- 3) The point (2) above needs to be borne in mind when two or more distinct forms, which are, however, semantically synonymous or nearly synonymous, are known to be in use in BH and QH. In such cases we cannot determine with certainty why X has been chosen in place of Y. This question is taken up under (D) and (G).
- 4) Both QH and CDG proffer (morpho)syntactic features which are generally considered to be typical of MH as against BH. This matter has been treated under (B).
- 5) Some variations in CDG can be indicative of some substantive difference, not merely a different linguistic expression, but a different view of the subject matter in question. This aspect has been illustrated above under (E).

²¹ Cf. *DJD* 34, p. 117.

²² On verbs in QH combining with בִּי, see *SQH* § 31 eb.

²³ Rabin’s (67) reconstruction of CD 13.23 is confusing: יָמִים .. יָבִיא עָלֶיךָ.

²⁴ On more examples of בְּלוֹא + noun phrase in QH, see Muraoka 2022 on 1QS 4.14.

- 6) Under (F) we have noted that CDG is not always consistent, which is not surprising and can be equally said of QH or any text or oral communication whatsoever.
- 7) Under (C) we have touched on one case indicative of the atomistic approach in CDG.
- 8) 5Q12 and 6Q15 display no variant relevant to questions of (morpho)syntax.
- 9) Summing up we would say that cases of “distortion” in CDG are very minimal as far as its (morpho)syntax is concerned.

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New ancient North Arabian inscriptions from Wadi al-Qattafi

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Abstract

This paper reports on a study of two new Safaitic inscriptions found during a recent survey conducted at Wadi al-Qattafi in al-Harrah region of the northeastern Badia of Jordan. The inscriptions present new linguistic phenomena that have not been reported on previously in Safaitic texts. The inscriptions were engraved using the square or monumental script.

Keywords: *Safaitic; Nabataeans; Ancient North Arabian; Pre-Islamic Arabia*

Introduction

The northeastern Badia of Jordan contains a great number of rock inscriptions written in the so-called “Safaitic” script. This is a variant of the “Ancient North Arabian” scripts, which belong to the South Semitic alphabet family. The term “Safaitic” refers to the Ṣafā, a lava sheet located to the southeast of Damascus in southern Syria where these inscriptions were first discovered in 1857. The inscriptions offer a vast wealth of data for historians and epigraphers, shedding light on the culture, history and daily activities of their authors.

The stones which bear the inscriptions studied here were discovered in the Wadi al-Qattafi area, located 70 km to the southeast of as-Safawi (formerly known as H5) and 60 km to the east of al-Azraq. The town of Al-Azraq lies alongside the now redundant Trans-Arabian Pipeline (also called Tapline), which extended across the deserts of northern Saudi Arabia into Jordan and then northwest across southern Syria and Lebanon. Wadi al-Qattafi runs through the Harrah region of the northeastern Badia of Jordan, which includes a variety of geomorphological terrains: typical desert, plains and uplands. Most of the region is covered with basalt rocks and volcanic formations. Wadi al-Qattafi is a broad, shallow valley flanked by about 30 hills capped with basalt bedrock and loose scree. The hills rise from 40 to 60 m above the wadi floor,¹ about 650 to 750 m above sea level. The wadi has a few tributaries and contains a number of seasonal pools, providing opportunity for the growth of plants suitable for grazing during winter (Fig. 1). Numerous Safaitic inscriptions and examples of rock art are found within this wadi. Since the mid-20th century many researchers have visited it, reporting the presence of these inscriptions in several studies.²

¹ Hill 2017, pp. 114–123.

² Betts 1999; Rollefson 2013, pp. 211–230; Wasse *et al.* 2012, pp. 15–24; Hill and Rowan 2017, pp. 114–123; Rowan 2019, pp. 247–251.

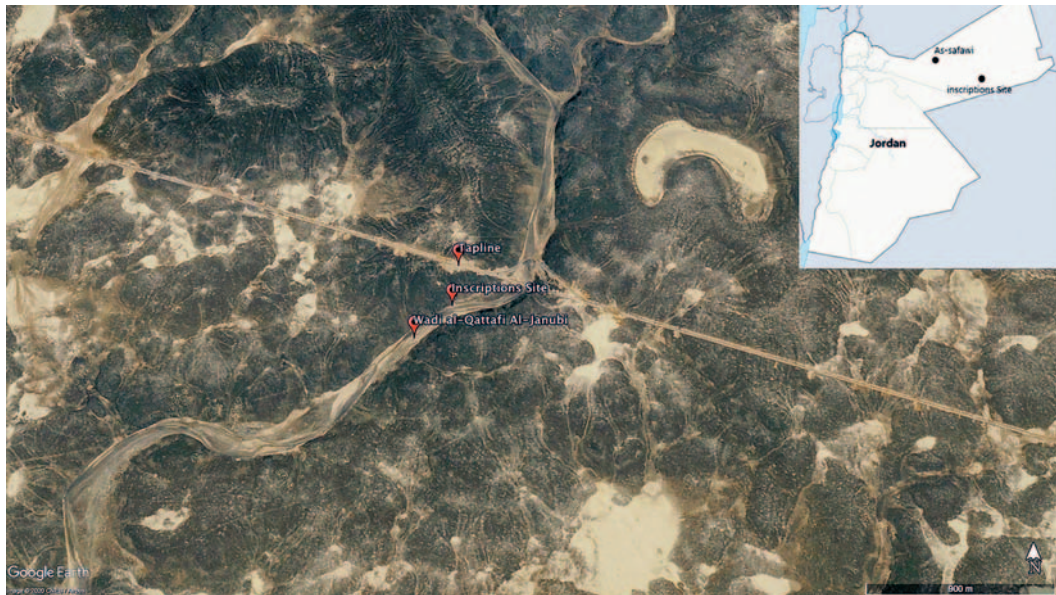


Figure 1. Map: location of inscriptions.

A ground-breaking investigation also revealed the existence of a Late Neolithic (c. 7000–5000 cal BC) pastoral occupation in Wadi al-Qattafi, as well as in the vicinity of Wisad Pools, a little further to the east.³

The Inscriptions

This study presents two previously unpublished Safaitic inscriptions. Both are engraved in the so-called “square” or “monumental” variant of the Safaitic script, which is the most common writing style attested in the Wadi al-Qattafi region. Since all the known inscriptions that mention the name of the *’mrt* tribe are written in the square script, many scholars have acknowledged that the square script is specifically related to the tribe of *’mrt*.⁴ Both inscriptions in this study mention a well-known individual called *’bgr bn’*. The paper examines the identity of this person, his relation to the tribe of *’mrt*,⁵ and the geographical distribution of the inscriptions that mention him.

³ Rollefson *et al.* 2014, pp. 285–330.

⁴ Khaysh 1995, pp. 401–414; Al-Manaser and Norris 2019, pp. 69–86; Milik 1980, pp. 41–54; Ababneh 2017, p. 113.

⁵ Abbadi 2013, pp. 119–125.

MZKHJ-1 (fig. 2)



Figure 2. Photo and tracing of the inscription MZKHJ-1.

Transliteration

l whblh bn hn' bn nqyd d- 'l' mrt w r'y w r'y w s'lm s'n{t} ngy m-wtr 'bgr s'nt 'rb'n w s'b' l-qysr

Translation

“By Whblh son of Hn' son of Nqyd of 'mrt tribe, and he pastured and watched (the animals) and he was saved, the year 'bgr escaped from Wtr, in the year forty-seven of Caesar”

Commentary

The inscription is carved on the face of a large basalt rock. It is surrounded by a rounded frame. It is common for the authors of Safaitic inscriptions to use these frames, presumably for aesthetic reasons or purposes of protection. Three letters of the text are not clear: the letter *n* in the word *bn*, the *t* in the word *s'nt* and the *q* in the word *qysr*.

The author of the inscription belongs to the tribe of 'mrt, the name of which is mentioned in many other Safaitic and Nabataean inscriptions. Interestingly, a bilingual Nabataean/Greek inscription from Madaba, as well as a group of Safaitic and Nabataean graffiti from Burqu', reveal that the tribe's members were literate in both Nabataean and Safaitic, and some of them possibly also in Greek.⁶ To date, all known Safaitic inscriptions carved by members of the 'mrt tribe are composed in the so-called “square script”. Winnett argued that this variety of the Safaitic script developed directly from the Ancient South Arabian alphabet and that the texts employing it may date from the first century BCE.⁷ Several scholars such as Harding and Clark have disputed Winnett's theory. They consider that there is no reason to regard the square script as older than the other varieties of Safaitic.⁸

⁶ Milik 1958, p. 52; 1980.

⁷ Winnett 1957, p. 3.

⁸ Harding, quoted in Winnett 1957, no. 78; Clark 1979, pp. 86–87.

Like most of the Safaitic inscriptions, this one begins with the particle *l*, after which come the author's name and lineage and then the narrative section. The texts contain four conjugated verbs, *ngy*, *s'lm*, and *r'y*, which occurs twice. There are three different uses of the root $\sqrt{r'y}$ through the Safaitic corpus: one finds the G-stem verb *r'y* */ra'aya/ "he pastured", the G-stem infinitive *r'y* */ra'āy/ "to pasture", and the G-stem active participle *r'y* */rā'ey/ "pasturing, shepherd".⁹ The phrase *w r'y* is encountered in two other inscriptions (C 34; SIT 40), the editors of which analysed it as a simple repetition of the verb and translated it literally as "and he pastured and pastured." However, we think that the verb *r'y* can actually carry two different meanings here, in the first case "he pastured" as usual, and in the second one "he watched and waited," as revealed by one use of the verb *ra'a* in Classical Arabic (Ibn Manẓūr, s.v. *r'y*). Another solution could be that this repetition expresses intensity or duration, "he pastured over a long period," unless it consists of an accidental dittography.

The verb *ngy* is very common in Safaitic, particularly in the dated inscriptions. As such, the phrase *s'nt ngy* is attested more than 40 times (OCIANA). It appears that this verb has at least three different meanings. The first is found in WH 1698, *s'nt ngy qsr h- mdnt* "the year Caesar announced the province," where *ngy* means "to announce", as demonstrated by Macdonald. According to Macdonald, this is the same meaning that is encountered in the formula *s'nt ngy PN hdy*, which should mean "the year that PN was announced leader," and not "the year that PN the leader escaped."¹⁰ Also, the same meaning for the feminine form of the verb (*ngyt*) is found in SIJ 786, *ngyt ' mlkt* "the Queen was announced." The second meaning is found in HCH 102.1, *s'nt ngy rbb'l* "the year *Rbb'l* escaped", where the verb *ngy* is interpreted as "to escape". The third meaning is attested in LP 424, *s'nt ngy mlk s'ltn* "the year that *MLk* retained power."

Wtr: This term has not been reported before in any Safaitic inscription. The authors suggest, however, that it could be the equivalent of the Arabic verb *watara*, meaning "disorder, oppression" (Ibn Manẓūr, Root: *wtr*).

rb'n: This term is a number derived from the root *rb'* ['arba'] and it directly translates as "forty".¹¹ Many examples of numbers are found in ANA, WH 3094, *rb' smn* "four successive years"; KRS 2340, *hw-l-h rb't* "his four maternal uncles"; and in Dadanitic, *rb'n w rb'* "forty-four" (AH 224).

s'b': This term is a number that is derived from the root *sb'* [sab'] and it directly translates as "seven".¹² Another example of the occurrence of number seven in the Safaitic is *w r'y h- d'n s'b' s'nn* "and he pastured the sheep seven years" (OCIANA-0032311). The form *rb'n w s'b'* is unusual in Safaitic, where we would have expected *sb' w rb'n* as in Arabic. We think that this unusual order, with the ten before the digit, reflects an Aramaic borrowing.

qysr: The spelling *qysr* instead of *qsr* is very rare in Safaitic. This name undoubtedly represents a transcription of the Latin name "Caesar" [*qaysar*].¹³ Nevertheless, Milik argued that the word *qsr* in the Safaitic cannot be interpreted as "Caesar". His argument was based on the fact that the Latin word "caestris" is commonly written *qysr* in Palmyrene and Nabataean inscriptions. However, Milik's argument does consider the fact that the sign for the phoneme *s*³ does not exist in the Safaitic. Consequently, the word *qsr* in the Safaitic should always be interpreted as the Roman Caesar.¹⁴

⁹ Al-Jallad and Jaworska 2019, s.v.

¹⁰ Macdonald 2014, pp. 154–155.

¹¹ Al-Jallad and Jaworska 2019.

¹² Al-Jallad and Jaworska 2019.

¹³ Al-Jallad and Jaworska 2019.

¹⁴ Milik 1960, pp. 178–181.

Macdonald, in his 2014 article “Romans Go Home?”, provided a detailed explanation about the word *qsr* in the Safaitic. Although it occurs in the Safaitic inscriptions at least 25 times, it is not always possible to identify the particular Caesar referred to, although some can be positively or tentatively determined. Macdonald argued that “Caesar’s son”, mentioned in the Safaitic script in OCIANA-0030128: *sʿnt myt bn qsr* “the year Caesar’s son died”, refers to the adopted son of the Roman Caesar Tiberius, whose name was Germanicus. In another Safaitic inscription, Germanicus is mentioned by name. When Germanicus visited Syria in 19 CE, he made great achievements and left a very positive impression before his sudden and suspicious death near Antioch. Another example of the mention of a Roman Caesar in Safaitic inscriptions is found in KRS 199, *sʿnt qbl ʿl- hṛn qsr ʿl- fff{s}* “the year the people of the Hawrān complained to Caesar about {Philippus}.” Macdonald suggested that Philippus, in this instance, likely refers to the son of Herod the Great, who was named Philip the Tetrarch. Philip ruled from 4 BCE to CE 33/4 over the northern parts of the kingdom of Herod the Great, which included Batanaea (the fertile parts of northern Jordan), Trachonitis (the Lejā), Auranitis (the Hawrān), Gaulanitis (the Golan), and Pnias (around the sources of the Jordan river). Therefore, he was the ruler of the Hawrān which is the nearest settled area to the deserts where Safaitic inscriptions were engraved.

In addition, there is a Safaitic inscription that is dated to “the year Caesar sent reinforcements to the province and put the province in good order.” Macdonald argued that the Roman Caesar mentioned here is likely Septimius Severus.

As Macdonald notes, it is not always possible to determine the Caesar referred to in a text.¹⁵ In the case of MZKHJ-1, discussed here, there is the problem that there is no Roman Caesar who ruled for 47 years. This may mean that the Caesar referred to here was well known to the author of the inscription, who therefore dated his inscription 47 years after the Caesar’s death. It is possible also that *qsr* could refer to a Roman era rather than to an emperor himself, in which case the inscription could date to 153 CE.

MZKHJ-2 (fig. 3)

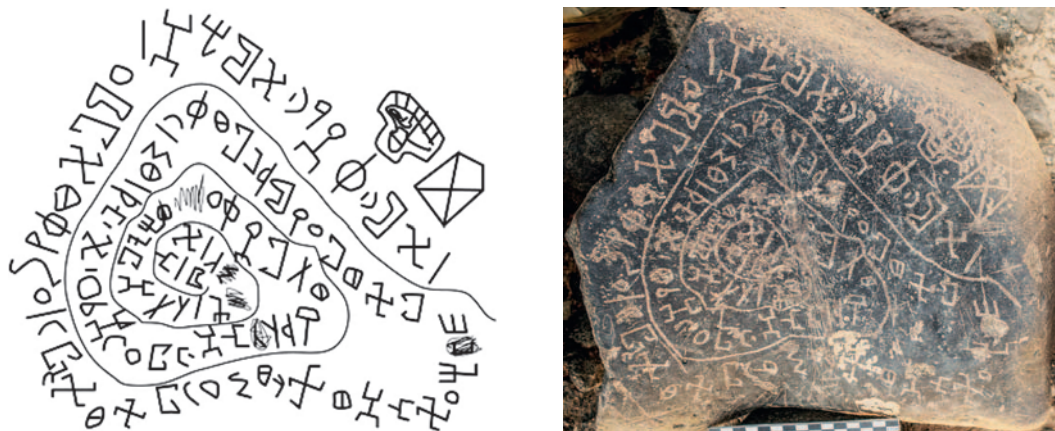


Figure 3. Photo and tracing of the inscription MZKHJ-2.

¹⁵ Macdonald 2014.

Transliteration

*l tm bn qsy bn tm d- 'l' mrt w qyz 'l- brkt w trb' f [] w 's't'd hrt w r'y mabr w qbl f wld s'nt ngy
'bgr bn 's' [] y w hys q' [] w-dkr 'h -h f h lt s'lm*

Translation

By tm son of qsy son of tm of the 'mrt tribe, and he spent the Summer {at the} water pool and lived there in the time of spring ... and he went quickly through al-Harrah, pastured the desert, and was reunited with them (his loved ones), and (the goats) gave birth in the year 'bgr son of 's' gained safety, and he grieved, and remembered his brother. Oh Lat grant safety peace.

Commentary

This inscription is engraved using the square script on a medium-sized basalt stone. The lines of the script are partitioned by a rounded frame. Some of the letters are scratched over, making the reading and the consequent interpretation of some of its words unclear. In addition to encircling the inscription with the frame, a square shape was carved with an X-sign inside it and with a drawing alongside it resembling a human head. This is one of the rarest drawings to appear in the Safaitic inscriptions.

qyz v.g-stem: This is equivalent to the Arabic verb (قِضَ / *qayaza*), which translates into “to spend the dry season”. The verb is attested in a number of Safaitic scripts.¹⁶ The same phrase (*w qyz 'l- brkt*) as in this inscription appeared in eight other Safaitic inscriptions as well.¹⁷

brkt is a toponym well attested in other Safaitic inscriptions. It refers to a place of permanent water. It is likely equivalent to the Arabic word (بركة / *berkat*) which means “pool of water”. It is a noun that is derived from the root *brk*.

trb' v.t2-stem: This is a verb that is derived from the root *rb'* which translates into “to pasture upon the plants of the rainy period”. It can also be compared to the Arabic verb (تَرَبَّعَ / *tarabb'*) which is derived from the root *rabab'a* and translates as “to spend the spring time”. This verb also occurs in other Safaitic inscriptions.¹⁸

qbl is a verb that is well known in numerous other Safaitic inscriptions. It is derived from the root *qbl* which translates into “to be reunited (with loved ones)”.

's't'd v.t2-stem: This verb has not been previously noted in other Safaitic inscriptions. It is likely to be equivalent to the Arabic verb (سُتِدَ) which is derived from the root *'awada*, which means “to seek refuge”.¹⁹

hrt is a well-known toponym in the Safaitic inscriptions. It indicates the Harrah.

mabr is a toponym that occurred previously in other Safaitic inscriptions (see KRS 25). It is derived from the root *dbr*, which means the inner desert (the Ḥamād). *mabr* as mentioned in the Safaitic inscriptions has been recognised as the Ḥamād, meaning the desert beyond the Harrah.²⁰

¹⁶ See HCH 107; WH 2399; Lane, 2579b.

¹⁷ Harding 1953, pp. 8–56.

¹⁸ AWS 2; Lane, 1022b.

¹⁹ See Ibn Manzur 2003.

²⁰ See MSTs.

This word can be compared with the Hebrew word *midbār* and the WS *madbarum*, which means “pasture, steppe, wilderness”. In the Hebrew Bible, the word *mdbr* frequently indicates the desert located between Palestine and Egypt.²¹

sʿnt ngy N hdy is a dating formula that previously occurred in numerous Safaitic inscriptions.²² The word *hdy* can be compared with the Palmyrene term *hdy* which translates as “commander”. This term occurred in the phrase *hdy nṭryn* which means “commander of guards”.²³ Macdonald proposed that these men, who are mentioned in the Safaitic texts as having escaped from *hdy*, were commanders of units of the Roman or Nabataean armies, and that these units were formed from the nomads. He also suggested that the date may indicate the year of their nomination as unit commanders, without implying that they have command for only one year.²⁴

hṛṣ v.g-stem: This is a verb that has been previously noted in other Safaitic inscriptions. It is derived from the root *hṛṣ* and translates into “to keep watch; to look after; to anticipate”.²⁵

Conclusion

The occurrence of the personal name *ʿbgr* in the inscriptions of this study and a number of other inscriptions found in the Dayr al-Kahf area may indicate that a person of this name had done something important in the region that led to his renown. In 2006, Macdonald published an article on the inscriptions of Dayr al-Kahf in Jordan where the personal name *ʿbgr bn ʿs*¹ is mentioned.²⁶ Then al-Housan published an inscription from the same region written by the same author which mentions four generations of the tribe of *ʿmrt* for the first time.²⁷ It appears that this figure — *ʿbgr bn ʿs*¹ — was a well-known person who did something against authority, the Romans or the Nabataeans. It seems that the local residents at the time dated their inscriptions to this famous incident. It is also important to note that the inscriptions which mention the name of *ʿmrt* tribe and the personal name *ʿbgr* are referred to by some scholars as military inscriptions, as they commonly contain words that are usually used in military contexts, such as the verb *qss*, the verb *nzr*, and the word *msrt*, which means a military unit. The discovery of more related inscriptions in the future may help to clarify these matters.

The dating of the first inscription of the present study is speculative and cannot, so far, be affirmed. The author dated it to the year 47 of the Caesar, but the specific Caesar is not identified. If we assume that the author was dating his inscription to the 47th year after the end of Roman rule over *Provincia Arabia* or the City of Bosra — which occurred in 106 CE according to historical sources — then this inscription can be dated to the year 153 CE. However, if it is assumed that the author dated his inscription to the 47th year after the sudden and suspicious death of Germanicus (the adopted son of the emperor Tiberius), who died near Antioch in 19 CE shortly after his tour of Syria, then the inscription can be dated to the year 66 CE. Meanwhile, if the Caesar referred to in this inscription is Septimius (193–211 CE), then the inscription goes back to the year 248 CE.

²¹ HALOT, #4816.

²² Macdonald 2014, p. 155.

²³ Du Mesnil 1939, pp. 20–22, no. 39, line 3.

²⁴ Macdonald 2014, p. 156.

²⁵ KRS 2060, KRS 1432.

²⁶ Macdonald 2006.

²⁷ Al-Housan 2017, pp. 19–49.

Many of the Safaitic inscriptions that mention the name of 'mrt tribe are dated to the first century CE, especially those bearing the names of a number of Nabatean kings such as Aretas.²⁸ All of these inscriptions were written in square script.

Editorial conventions

{ } encloses letters and words of which the reading is doubtful

{/} indicates alternative interpretations of the same letter

[] encloses letters or words which have been restored by editor

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On the Urartian weight system: an examination

Yervand GREKYAN

Introduction*

Steps taken by royal powers to standardise different systems of weight, capacity and surface measures are evidenced in several ancient Near Eastern states; for example, the Kingdom of Akkad, where a standardised measure of capacity, the ‘king’s *gur*’ (LU₂.GAL GUR/*šarru kurru*), was introduced by Naram-Sin, king of Akkad (c. 2036–2200 BC).¹ The same phenomenon is attested in Mesopotamia during the Ur III period (2112–2004 BC).² In the Neo-Assyrian Empire a standardised system of weights, the ‘mina of the king’ (MA.NA *šá* MAN/LUGAL/*manê ša šarri*) and the ‘mina of the land’ (MA.NA *šá* KUR/*manê ša mātī*), was put into practice from the reign of Tiglath-Pileser III (744–727 BC) onwards.³ ‘Royal standards’ of weight and measure introduced throughout the Achaemenid empire by Darius I (522–486 BC), including ‘the royal weight’ (*b’bny mlk’*) / ‘the weight of the king’ (*bmtqlt mlk’*),⁴ are another example of this kind.⁵ The standardisation of different units by the state or royal power assumes the production of ‘neat’ balance weights and other artefacts to represent the absolute values of those units. Such items could comprise a piece of rope, or wood or metal, representing, for example, ‘one cubit’, or could be made of bronze or stone in the case of weights.⁶

An Urartian balance weight and the weight system

Turning now towards Urartu, the powerful kingdom that emerged in the first half of the ninth century BC in the Armenian Highlands, to the north of Mesopotamia, we find evidence of similar regulations.

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¹ Powell 1995, p. 1955.

² Biga 2006, pp. 342–343.

³ Powell 1987–1990, pp. 515–517; Fales 1996, pp. 12–17; Radner 1999, pp. 130–131. For textual evidence, see also Tadmor and Yamada 2011, nos 61–63.

⁴ These phrases are attested in the Aramaic papyri of the Achaemenid period. See, e.g., Folmer 1995, p. 632 and n. 176.

⁵ For example, Briant 2002, pp. 408–409, 414–415, 934–936.

⁶ Powell 1987–1990, p. 462.



Figures 1-2. The bronze balance weight found at the Upper Anzaf fortress (courtesy of Kenan Işık).

During the 2007 excavation season at Upper Anzaf fortress a balance weight was discovered. Upper Anzaf fortress was an important centre of the Urartian kingdom, founded near Van, ancient ̤uřpa, capital city of Urartu (now in eastern Turkey), by Minua (c. 810–791 BC), son of Išpuini (c. 830–810 BC).⁷ The weight was found on the floor of the so-called ‘Great audience hall’ of the citadel, between the two southernmost column bases and those adjacent to them, among the burnt wooden remains of a trivet or a table.⁸ The dimensions of the balance weight are 28.5 × 21.5 × 23 cm. It is made of cast bronze in a shape that outwardly resembles Mesopotamian duck-weights, and it is inscribed with both cuneiform and hieroglyphic scripts (Figs 1–2).⁹ On the side face of the weight, a set of hieroglyphs has been carved, the first of which is probably the head of an animal,¹⁰ a circle, a tower and five ‘rosettes’ (Fig. 3). The cuneiform inscription was carved on the handle of the weight. Both inscriptions mention the object’s weight: the cuneiform text reads 50 MA.NA KUR *al-ga-nu-si-e* and the hieroglyphic text in all probability is indicating the same (Figs 4–5).¹¹

The first comparison which comes to mind are Neo-Assyrian parallels mentioning the value of weights according to the ‘mina of the land’ (MA.NA šú KUR, see above), and something similar can also be suggested for the phrase KUR *al-ga-nu-si-e*. In the god list of the Urartian pantheon,

⁷ Belli 2009a, pp. 757–758, drawing 3, figs 6–8; 2009b, pp. 469–470, figs 8–13.

⁸ Now in the Museum of Van, inv. no. A 3121-07.

⁹ CTU IV, 73 B 18–8. See also Reade 2018, p. 187 for the use of hieroglyphs on an Assyrian weight found from Dūr-Šarrukin (Khorsabad).

¹⁰ Probably a horse, according to its publisher. See Belli 2009a, p. 758.

¹¹ Without doubt, the five ‘rosettes’ of the hieroglyphic text represent numerals. Judging by the photograph, each ‘rosette’ is divided into ten segments, and this could point to the use of a decimal system. Hence, we deal here with the number ‘50’ (5 × 10) as in the cuneiform text.



Figure 3. The hieroglyphic text (courtesy of Kenan Işık).

a sacrifice of a bull and two sheep is determined for an unnamed god (DINGIR) whose responsibility is ^{KUR}*alğaninawe* (pl. dative). This god comes between the god of the ‘lands’ (^{KUR}*ebaninawe* DINGIR) and the god of the ‘lakes/seas’ or ‘waters’ (^D*şuininawe* DINGIR).¹² The exact meaning of ^{KUR}*alğaninawe* DINGIR is unknown. The mention of ^{KUR}*algani* among mass nouns that point to lands and lakes in general, rather than specific instances, not to mention among ‘the gods of sacrifices’ (DINGIR^{MEŠ} *aṭqananawe*¹³), may indicate that in this case we are again dealing with a general term. In turn, it seems highly improbable that any real geographical unit or toponym, ‘the (land) of Algani’, is referenced.¹⁴ The most probable meaning among those that have been suggested is the ‘god of the borders’ or ‘the god of the plains’; see, for example, the passage of the royal annals of Argišti, son of Minua (c. 791–771 BC) where Assyria and its (?) ‘border/plain’ (?) is mentioned (*ku-ti₅-a-di pa-ri¹* ^{KUR}*aš-šur-ni-ni* ^{KUR}*al-ga-ni*).¹⁵ In any case, these translations remain tentative and other variants cannot be excluded.¹⁶

¹² KUKN, 38 Text I₁₈₋₁₉, II₃₂₋₃₃; CTU I, A 3–I₁₈₋₁₉, 63–64.

¹³ KUKN, 38 Text I₁₉, II₃₃; CTU I, A 3–I₁₉, 64.

¹⁴ Cf. CTU IV, 73 B 18–8.

¹⁵ KUKN, 174 B_{2x+8}, 173 IV₃₆; CTU I, A 8–2 Ro₈, 8–3 IV₃₆.

¹⁶ See, e.g., Diakonoff 1963, pp. 77, 87; CTU I, 330 (pianure?).



Figure 4. The first part of the cuneiform inscription engraved on the handle of the weight, indicating its capacity (courtesy of Kenan Işık).



Figure 5. The second part of the cuneiform inscription (courtesy of Kenan Işık).

The sign KUR ('land' rather than 'mountain' in our text?¹⁷) can stand separately, thus being used as a logogram and not as a determinative for the following *alğanusie*. Let us note that the logogram KUR also means 'palace' (KUR = *ekallu*), and in that sense it is also attested on the Assyrian lion-weights.¹⁸ That meaning of the sign KUR was not unfamiliar in the Urartian texts as well.¹⁹ Hence, it cannot be excluded, and the hieroglyphic sign in the shape of a high tower could support such an interpretation. If ^{KUR}*alğani*, in fact, designates a term that can be tentatively translated as 'border' (or 'plain'), then perhaps it served as an indication of a certain weight system of which the weight was part. In that case, the cuneiform inscription in question could mean '50 minas of the borderland' or '50 minas of the lowland' or the like.²⁰ Whether this is the case or not remains uncertain. The possibility of slightly different meanings between the cuneiform and hieroglyphic texts can also not be excluded.

The main discussion here concerns the balance weight itself. It is made of bronze, and the inscriptions on it suggest these kinds of weights were produced by the state administration and according to state standards.²¹ The indication of the MA.NA as a measure of weight is also not surprising. That unit is attested in the royal annals of the Urartian kings Argišti, son of Minua, and Sarduri, son of Argišti (c. 771–735 BC), in reference to large quantities of 'pure' gold, silver, and copper (bronze) paid to these kings as a tribute (see below).

What is unexpected here is that the weight (50 MA.NA) is exactly 35 kg; that is to say, the value of one MA.NA equates directly to 700 g. This value clearly deviates from the Mesopotamian weight systems and especially from the measures of weight used in the Neo-Assyrian Empire. We mean here the 'standard' Mesopotamian (Babylonian) mina (505 g) and the 'mina of Karkemiš' (564 g mina system). The latter came to be widely circulated in the empire from the second half of the eighth century BC onwards.²²

As one 'standard' talent equals 60 minas or 3,600 shekels (60×60),²³ then we could presume that 50 Urartian minas might correspond to one Urartian talent,²⁴ proportionally consisting of 2,500 shekels (50×50). But in that case, each shekel would have a value of 14 g, which is outside the standard values of shekels in the region. Instead, the Urartian talent may be equal to

¹⁷ Cf. Fales 1996, p. 15, n. 9; Radner 1999, pp. 131–132.

¹⁸ Fales 2016, p. 485, n. 14, Table 1 (nos 9–10).

¹⁹ Here we can refer to the functionary represented as ^{LÚ}KÙ KUR-*iš* 'treasurer (lit. 'man of silver') of the palace' in one of the Urartian clay tablets. See Grekhan 2016, p. 55 and n. 10.

²⁰ Here one may remember the "mina of the mountain," attested rarely in some Neo-Assyrian sale documents. See Radner 1999, pp. 131–132; Fales 2016, p. 485, n. 11. It is interesting to consider whether the "Urartian mina" was meant in those documents, especially when the use of "the mina of the mountain" was quite limited and is attested in connection with copper.

²¹ See also Reade 2018, p. 150.

²² Zaccagnini 1999–2001, p. 42; 2018, pp. 53–55; 2019, p. 66; Fales 1996, pp. 16–17; Vargyas 1996, pp. 9–14; Radner 1999, pp. 130–131. But cf. Reade 2018, pp. 172–174 for the meaning of 'mina of Karkemiš' (*manê ša Gargamiš*).

²³ Powell 1987–1990, p. 514.

²⁴ In the meantime, there are no grounds to suggest that the weight under consideration represents 5/6 value of the Urartian talent of 42 kg (60×700 g, see Salvini 2012, p. 73 quoting Nicola Parise). First, the 5/6 fraction seems unusual. Besides, this assumption is based merely on the sexagesimal system without considering other possibilities, especially when the proposed value of 42 kg for one talent is outside of all ancient Near Eastern standards. For example, one can suggest here the existence of an Urartian talent based on the ratio 40:1 (40 Urartian minas of 700 g = 1 talent of 28,000 g). This is interesting, as we obtain a value almost equal to the so-called western talent of 28,200 g (see, e.g., Zaccagnini 1999–2001, p. 41). In this case, we could think that the bronze weight is equal to 1 talent + 10 minas. But see below for the use of talent in Urartu.

3,000 shekels, if we assume a ratio of 60:1 for one mina. In that case, the value of one Urartian shekel would be equal to *c.* 11.7 g, which is also the value of one shekel in the weight systems of the Anatolian-Syro-Levantine lands in the second millennium BC, corresponding to the ‘Hittite shekel’ of *c.* 11.7 g.²⁵ Furthermore, it can be noted here that in the local weight system of Ugarit (Ras Shamra) and Alalah (Tell Atchana), a talent was also equal to 3,000 shekels (see Table).²⁶

| Weight systems mentioned in the text | Shekel | Mina | | Talent | |
|---|---------------------|-----------------|------------|-------------------|----------------------------------|
| Mesopotamian ‘standard’ weight system | <i>c.</i> 8.4 g | <i>c.</i> 505 g | 60 shekels | 30.3 kg | 60 minas or 3,600 shekels |
| ‘Western’ weight system of Karkemiš | <i>c.</i> 7.83 g | 470 g | 60 shekels | 28.2 kg | 60 minas or 3,600 shekels* |
| ‘Western’ (Levantine) weight system | 9.4 g | 470 g | 50 shekels | 28.2 kg | 60 minas or 3,000 shekels |
| ‘Western’ (Hittite) weight system | 11.75 g | 470 g | 40 shekels | 28.2 kg | 60 minas or 2,400 shekels* |
| 564 g mina system of Karkemiš** | 9.4 g | 564 g | 60 shekels | <i>c.</i> 33.8 kg | 60 minas or 3,600 shekels |
| Assyrian ‘heavy’ mina | <i>c.</i> 8.9 g × 2 | 1,070 g | 60 shekels | <i>c.</i> 64 kg | 60 heavy minas or 3,600 shekels* |
| Assyrian ‘mina of the king/of the land’ | <i>c.</i> 8.4 g × 2 | 1,010 g | 60 shekels | <i>c.</i> 60 kg | 60 heavy minas or 3,600 shekels |
| Urartian weight system | <i>c.</i> 11.7 g | 700 g | 60 shekels | 35 kg | 50 minas or 3,000 shekels* |

* The use of talents is not attested.

** See Reade 2018, p. 150 for discussion of the value of ‘mina of Karkemiš’ in the late Neo-Assyrian period.

A value for the Urartian shekel of *c.* 11.7 g is interesting in the context that the political confrontation between the Urartian kingdom and the Assyrian empire, which lasted more than a century,²⁷ could have limited (official) trade relations, hence opening the way for contraband trade.²⁸ In all probability the exchange of goods was realised through mediators, and that role could have been successfully carried out by the Luwian kingdoms of Asia Minor and Northern Syria. It may be that the Urartian kingdom standardised its weight system with an orientation to the western, ‘Hittite’ world. It is true that for now we have only scanty evidence of the continued use of the second millennium BC Anatolian weight system, based on the *c.* 11.7 g value of the shekel, in the first millennium BC.²⁹ On the other hand, it is evident that the local weight system of Late Bronze Age Karkemiš continued to exist and became popular especially in the Neo-Assyrian Empire.³⁰ If the ‘Western’ mina of Karkemish, equalling 470 g, was also used in other Luwian lands, like Tabal or Gurgum, where the ratio of 40:1 could still be expected, then the value of *c.* 11.7 g for each shekel is possible. At the least, the use of the mina of Karkemiš at Sam’al (Zincirli) and some other Iron Age sites in the region is archaeologically attested.³¹ In addition, it is worth nothing the fairly visible Hittite influence on Urartian units of capacity, such as the use of the dry measure called

²⁵ Zaccagnini 1986, p. 22; 1999–2001, p. 39.

²⁶ See Zaccagnini 1978, p. 69; 1979, pp. 472–473; Mederos and Lamberg-Karlovsky 2004, pp. 208–210, Chart 1.

²⁷ See Fuchs 2012, pp. 139–141.

²⁸ Lanfranchi and Parpola 1990, no. 100.

²⁹ See Zaccagnini 1999–2001, pp. 42–43, n. 27.

³⁰ Fales 1996, p. 16, n. 11; 2016, p. 487; Zaccagnini 2019, p. 65. This weight system is still attested in Syria in the Early Bronze Age. See Zaccagnini 1986, p. 22; 1999–2001, pp. 41–43; 2019, pp. 37, 42; Vargyas 1996, p. 13.

³¹ Zaccagnini 2019, pp. 41–42.

kapi in Urartian,³² which could have been borrowed from the Hittites;³³ see ^{DUG}*kappi* of the Hittite texts.³⁴ In the same connection we can mention another loan word, the Urartian verb *šuw-* ‘to fill, to store’; see the cuneiform Luwian *šuw-* and the Hieroglyphic Luwian *suwa-* with the same meaning.³⁵ The continuation of the use of Hittite hieroglyphic script in the western regions of Urartu should also be mentioned, including short inscriptions engraved on the necks of large *pithoi*, marking their capacity.³⁶

A second archaeological discovery of balance weights occurred at Ayanis — another important site of the Urartian kingdom, on the eastern shores of the Van Lake, to the north of the city of Van. A weight of 184 g, made of basalt, was discovered from Area XIII of the citadel.³⁷ Whether it represents a value of one quarter of the Urartian mina (that is, 15 Urartian shekels) is not clear, as that would be equal to 175 g, while we have 184(+?)³⁸ g! On the other hand, it is well known that the values of ancient balance weights could vary by a half to tens of grams for larger units.³⁹ Hence, the possibility cannot be ruled out, especially when the use of balance weights representing one half, one third, one quarter, one sixth or one eighth of the mina or the talent was accepted practice in ancient weight systems. It is intriguing to consider this weight as a one-sixth fraction of the ‘heavy’ (that is, double) mina of Karkemiš, weighing c. 1120 g (564 g mina system).⁴⁰ In that case, it equals 20 shekels of 9.4 g (= 188 g). The 9.4 g value also represents the Levantine (Ugaritic) shekel and, as another working hypothesis, one might assume that we are dealing here with a value of two fifths of the ‘Western’ mina (470 g).⁴¹ The Assyrian ‘heavy’ mina of 1070 g is another candidate,⁴² in which case the Urartian weight would represent one sixth of the double mina. In any case, for now these are all merely suggestions. We can only hope that a close look at the corpus of artefacts stored in the depositories of different museums, as well as the ongoing excavations at the Urartian sites will reveal new examples that can extend our knowledge of the weight system that existed in Urartu. The discovery of a drawing of a hand-held scale on a potsherd found at Ayanis (Fig. 6) gives us cautious optimism.⁴³

Conclusion

The evidence on weight systems that circulated in the Armenian Highlands before the formation of the Urartian kingdom is also scanty. There are some grounds to suggest the use of Mesopotamian systems, as the casting moulds in stone found at the famous Early Bronze Age site of Shengavit

³² KUKN, Glossary: *kapi(e)*.

³³ Khachikyan 1985, p. 53.

³⁴ For example, Tischler 2001, p. 69. The term is also attested in Akkadian. See CAD, K, 1971, pp. 188–189 (*kappu* B).

³⁵ Kosyan 1997, pp. 29–30; see also Christiansen 2019, p. 137 for discussion.

³⁶ See CTU IV, CP Alt-1–8.

³⁷ Batmaz 2013, p. 134 and fig. 17. In fact, there are some doubts about the original function of this stone weight. But its discovery among various artefacts including bronze and golden items could perhaps testify to it serving as a balance weight.

³⁸ Seemingly, the stone weight has some small broken parts, and its original weight could have been slightly more.

³⁹ See, e.g., Bordreuil 2006, pp. 209–214 for Ugaritic weights.

⁴⁰ Zaccagnini 2018, p. 54, also for the stone weights of 184–190 g each, that is, one sixth of the ‘heavy’ mina of Karkemiš. See also Ascalone 2011, pp. 57–64.

⁴¹ Zaccagnini 2019, p. 38.

⁴² Reade 2018, p. 158; Finkel and Reade 2019, pp. 45–47.

⁴³ Çilingiroğlu 2018, pp. 645–649.



Figure 6. Drawing of a hand-held scale from Ayanis (after: Çilingiroğlu 2018, p. 647, Figure 1a-b).

in Armenia can testify. The ingots melted in those moulds should have weighed around 8.06 and 16.13 g, which would eventually correspond to single and double ‘standard’ Mesopotamian shekels (*c.* 8.4 and 16.8 g).⁴⁴ Some other moulds found at the Early Bronze Age sites of Jrahovit and Karnut in Armenia were intended for casting copper ingots weighing *c.* 500 g; that is, one ‘standard’ Mesopotamian mina.⁴⁵ A small agate weight in the shape of frog, inscribed with the name of the Kassite king Ulam-Buriaš, son of Burna-Buriaš of Babylonia, found in 1979 in Metsamor, Armenia, also corresponds with Mesopotamian standards (8.64 g; that is, one shekel).⁴⁶

On the other hand, the evidence obtained from the Late Bronze Age sites of the Armenian Highlands shows, in contrast to the former periods, the common ‘westward’ orientation of contacts, towards the centres like Ugarit in Northern Syria.⁴⁷ Seemingly, the orientation of the Urartian weight-system towards the ‘western’, Syro-Hittite/Luwian lands was a continuation of these Late Bronze Age traditions.

One last thing that we can add in this context is the interesting fact of ignorance of the use of *talents* in Urartu. The Urartian inscription on the bronze balance weight indicate its value as ‘50 mina’ and not ‘1 talent’. The large quantities of metals received as tribute were also counted in minas and not in talents; for example, [x] ‘*a’-ti-bi* MA.NA URUDU^{MEŠ} ‘x × 10,000 minas of copper (bronze)’, 10 LIM MA.NA URUDU^{MEŠ} ‘10,000 minas of copper (bronze)’ or 8 ME MA.NA-*e* KÛ.BABBAR ‘800 minas of silver’.⁴⁸ This practice is typical of the Anatolian/Hittite world,⁴⁹ and the reflection of the same practice in Urartu serves as an additional argument pointing to ‘western’ influence on the Urartian weight system.

⁴⁴ Simonyan *et al.* 2019, pp. 37–40. For a general discussion on the Caucasian weight systems, see Bobokhyan 2010, pp. 179–203.

⁴⁵ Bobokhyan and Badalyan 2012, p. 206; Simonyan *et al.* 2019, p. 37.

⁴⁶ Khanzadyan *et al.* 1983, pp. 113–122, figs 1–3.

⁴⁷ Bobokhyan and Badalyan 2012, pp. 208–210.

⁴⁸ See KUKN, 174 B1₂₁, 24, 241E₅₅; CTU I, A 8–2 Vo₂₁, 24, A 9–3 IV₅₄, respectively.

⁴⁹ Michel 2017, p. 96.

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Abbreviations

CAD — Chicago Assyrian Dictionary
CTU I–III — see Salvini 2008
CTU IV — see Salvini 2012
KUKN — see Harutyunyan 2001.

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Domestic architecture and household structure at Late Bronze Age Tell Billa

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Abstract

The southwestern citadel of Tell Billa in the Late Bronze Age provides a rare example of a fully excavated functioning neighbourhood showing multiple varying types of household formation, emphasising multi-scalar levels of household members, production, and ownership. This article presents excavation data from the 1932–1933 field season at Tell Billa focused in the southwestern corner of the mound. The domestic architecture revealed there as part of Strata II and IA shows a neighbourhood of extended households, with several likely serving as larger residences integrated into the settlement due to the administrative duties of their occupants. A combination of the architectural remains, small finds, textual evidence, and domestic burials reveals an emphasis on the extended family, including members of possibly different ethnic or social origins. These households and their members functioned as the fundamental entity of social, economic, and political organisation.

Keywords: *Tell Billa, household, household archaeology, Late Bronze Age, domestic architecture, Mesopotamia*

Introduction

While household archaeology — first defined as its own subfield by R. Wilk and W. Rathje in their seminal 1982 article¹ — has now long been integrated into the interests of Mesopotamian archaeologists, there is a marked tendency to address the household as an entity almost exclusively in the Middle Bronze Age.² As is the case in many avenues of ancient study, this is due in large part to the presence of numerous private archives dealing for the first time with the transactions of households, *not* elite or religious institutions.³ However, this general interest in households as a structuring principle tends to fall off as we reach the later second millennium — owing, no doubt, to the tendency to attribute significant reorganisation in social practices to encroaching imperial powers.⁴ Nonetheless, households remain the structuring self-governing agent — the “building blocks” of social and political institutions.⁵ Therefore, at an archaeological scale, their usefulness in decoding multi-scalar economic, social, and political relationships in the late second millennium cannot go understated.⁶

¹ Wilk and Rathje 1982.

² See, for example, contributions in Veenhof 1996.

³ Foster and Parker 2012.

⁴ Postgate 1992; Llop 2011.

⁵ Ur 2014.

⁶ Rainville 2012.

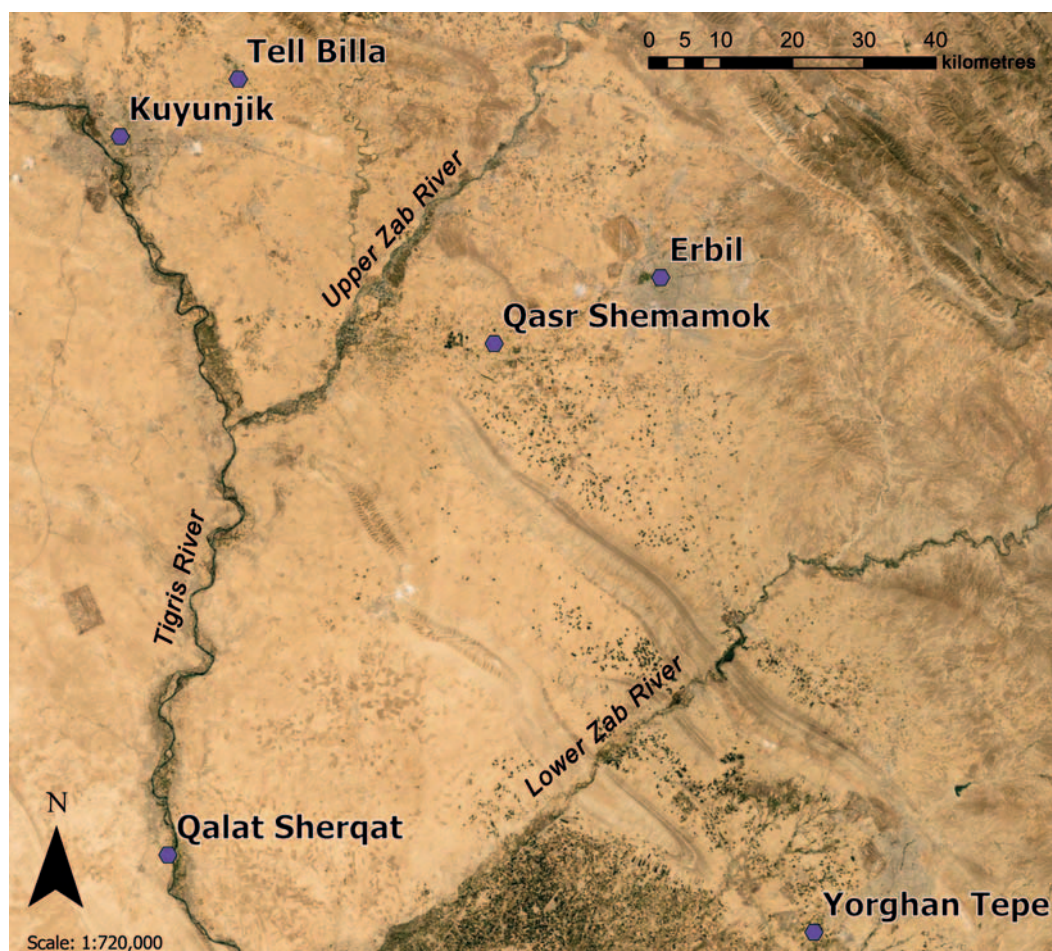


Figure 1. Map of Northern Mesopotamia, with Late Bronze Age sites marked (base map courtesy of ESRI).

This is especially the case at the northern Iraqi site of Tell Billa (see Fig. 1). Likely first occupied in the Chalcolithic, with phases of occupation until the Parthian period, the site was investigated by a joint University of Pennsylvania–ASOR project in the early 1930s.⁷ In the southwest corner of the mound (here assigned Area VII for clarity) the expedition uncovered stone foundations in the first stratum and underneath those, mudbrick domestic architecture in what the excavators termed Levels IA and II (see Fig. 2). Though the majority of Tell Billa remains woefully under published and modern research is stunted by lost records, the “Assyrian levels” of the southwest corner of the mound were published in a brief article by C. Bache.⁸ Ultimately this field report from the 1932–33 field season was the only true discussion of architecture and contexts at Tell

⁷ Brief overviews of the excavations while they were happening can be found in *BASOR* 40–68. The scope of these reports is necessarily limited, and they give little exact information.

⁸ Bache 1935; for an overview of that season’s excavations, see Bache 1933.

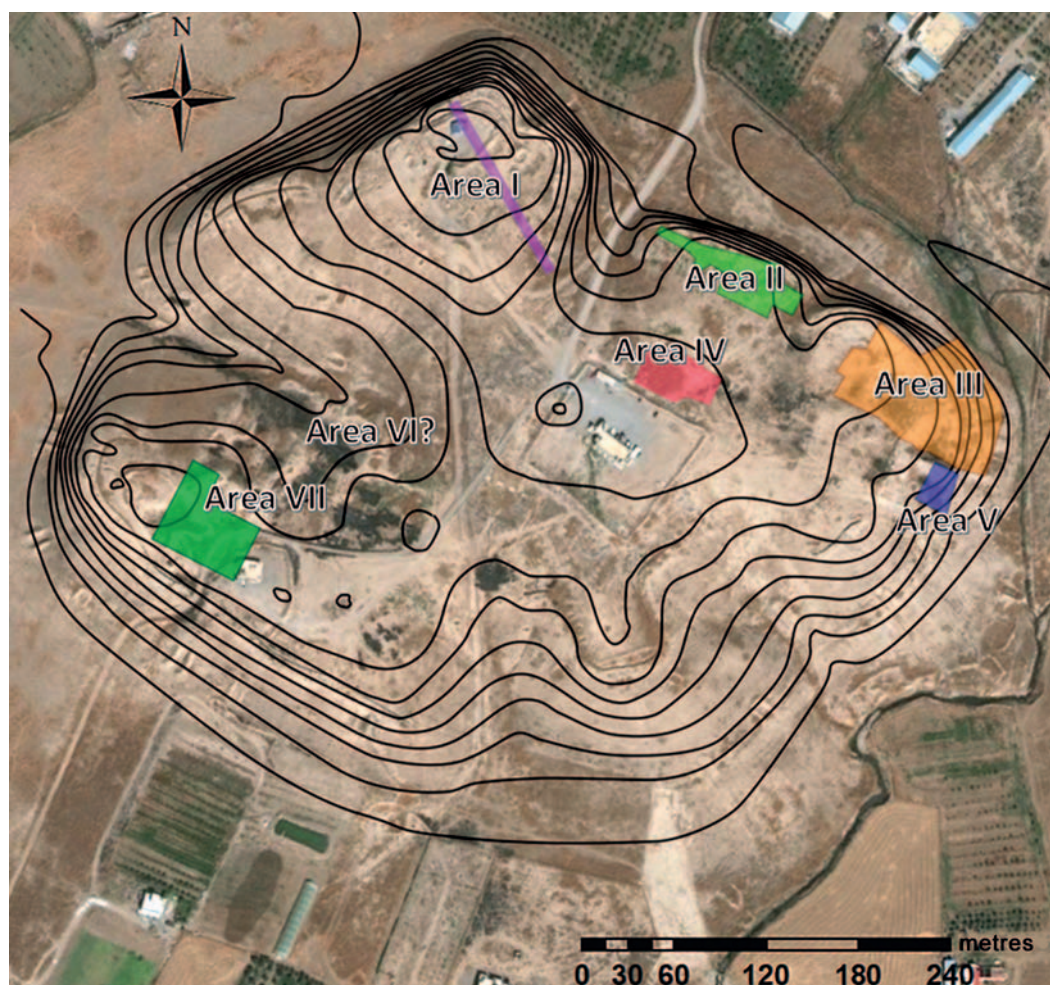


Figure 2. The modern mound of Tell Billa, with excavation areas marked (exact boundaries of Area VI unknown) (data after original plan in the Penn Museum Archives; base map from Google Earth 2018).

Billa but, even so, lacks the comprehensiveness required by modern archaeological standards. My representation of that information here not only reinserts material culture left out in that brief overview, but also takes the chance to reassess their interpretations with our modern understanding of historical and cultural horizons in northern Mesopotamia at that time.

This article has two structuring goals: first and foremost is to offer a full presentation of the data from Levels IA and II in Tell Billa's third season of investigation, including unpublished data from fieldnotes in the Penn Museum Archives and, secondly, to discuss the household structure of Tell Billa's Late Bronze Age neighbourhood revealed through this data. Overall, I argue that the structures of Tell Billa comfortably fit within contemporary corpi of Mesopotamian houses (built surrounding a central courtyard, with facilities for food preparation, storage, and craft production, with burials underneath house floors) — in this case, showcasing examples

of richer family units located in a prime position on the tell.⁹ Comparisons between the structures emphasise architectural continuity, while a discussion of the burials in each home provides insight into an extended household organisation, in lieu of direct textual evidence.

The architecture

Area VII, to which the discussed remains belong, encompasses an area roughly 60 × 60 m (see Fig. 3). Level II dates historically to the Middle Assyrian period, ratified by material culture and the cuneiform tablets discovered in this level during the second season and dating from the reigns of Adad-Nirari I to Shalmaneser I (1295 BCE–1234 BCE). Level IA consists of the phase directly after, but no exact dates accompany this stratum. Instead, it can be roughly equated to the transitional period between the Late Bronze Age and the Early Iron Age.¹⁰

These two levels are characterised by a continuous building plan, with only ephemeral changes between periods. This was clearly a domestic part of the mound, as evidenced by numerous house structures constructed along two main streets: one (street 51) running northwest-southeast, which then turns into streets 73 and 10, running west-east (Fig. 3). Connecting to this latter part is the open space, plaza 80, which the excavators suggest might lead to one of the town's main gates — going as far as to postulate it led straight to Nineveh, since this is the corner of the mound closest to Nineveh's "Šibaniba Gate".¹¹ The street also served as a main drain for the houses and, assumedly, guided the runoff from the rains which are present during the winter in this part of the country. In 51, the northwest-southeast portion, the road is paved on either side with stones sloping towards the centre of the street, which served as the main channel. Both streets, as Bache notes, were wide enough to permit the passage of carts.¹² Bache also suggests that further excavation in the north part of Area VII would have revealed another road intersecting 51, running west-east to the north of the excavated houses (Houses C and F, discussed later). Also along 51, on the east side of the road, were two benches built against the walls of House B, which I will later describe.

In his discussion of the Assyrian levels, Bache only identifies two house structures: House A and House B. Possibly this conservative identification was to reserve judgement on the other groupings of rooms until later seasons could further delineate other house boundaries, but it is unknown whether the following seasons (which were extremely limited in their scope and goals) continued to excavate here, much less whether they clarified the existing architecture. However, several more houses can and should be identified from the plans, and this division guides my presentation of the architecture of Levels II and IA. Bache goes to great lengths in discussing Houses A and B, but the other structures are summarily ignored, due to either their incompleteness or their identification as non-domestic structures.¹³ I present here the other structures, including proposed limits and uses of each. I argue that the character of the additional five structures I identify are also to be considered domestic structures, either in part or in whole.

⁹ Neighbourhoods from Late Bronze Age Aššur and Nuzi, for example, are very similar in form (Miglus 1996a; Starr 1939).

¹⁰ See Creamer 2021a for a complete explanation of the dating schema.

¹¹ Bache 1933. For the gates of Nineveh, see Reade 1978.

¹² Bache 1935.

¹³ Bache 1935.



Figure 3. Map of Area VII at Tell Billa, displaying the houses of Level II (Houses marked) (original plan courtesy of the Penn. Museum Archives).

| House A | House Complex B | | House C | House D | House Complex E | | House F | House G | House H |
|---------|-----------------|----|---------|---------|-----------------|-----|---------|---------|---------|
| | B1 | B2 | | | E1 | E2 | | | |
| 24 | 29 | 27 | 46 | 78? | 58 | 66 | 15 | 6 | 39 |
| 20 | 30 | 26 | 47 | 75a | 61a | 61a | 13a | 5 | 41 |
| 23 | 31 | 28 | 49 | 75 | 58a | 84* | 14 | 4 | 37 |
| 22 | 32 | 25 | 48 | 76 | 61 | 61 | 13 | 11 | 40 |
| 19 | 33 | 36 | 34 | 79? | 59 | 65 | 16 | 3 | 38? |
| 21 | 34 | | 44? | 81? | 60 | 68 | 17 | 3a | |
| | 35 | | 43? | 82 | 57 | 67 | 18 | 2 | |
| | | | 42? | 82a | 54 | 72 | | 1 | |
| | | | 50* | 77 | 53 | 70 | | 2a | |
| | | | | 74a | 55 | 71 | | 8 | |
| | | | | 74 | 56 | 69 | | 9 | |
| | | | | 83? | 52? | 64 | | 7 | |
| | | | | | 84* | 63? | | | |
| | | | | | | 62? | | | |

Table 1. Rooms belonging to each House in Area VII, Tell Billa Levels IA and II.

House A

House A, like all the houses we will discuss, existed through both Levels II and IA, mostly remaining the same throughout both phases. It encompasses rooms 19, 20, 21, 22, 23, and 24 (Fig. 4).¹⁴ It was entered through a doorway leading between vestibule 22 and the section of street 10. Room 22 was partially paved with baked bricks, and contained a drain which ran under the southeast corner of the wall into the street (see Fig. 4). Room 22 had doorways which led into the courtyard of House A (room 20) and into the toilet room (23). A second drain constructed of baked brick ran from the courtyard (20) into 22's drain. The courtyard was almost completely paved with baked brick, as is expected of an unroofed area. Along the walls was a 'baseboard' of a single row of baked bricks placed upright on their thinnest edge, serving to fortify and protect the mudbrick. A doorway in the north wall led to room 19 and probably a second doorway leading to room 21 was present in the west wall. In the south wall was a doorway leading to 23 that was sealed at a later date, sometime in Level IA.

Bache identifies 19 as the main "living room" of the house, based on the presence of a baked brick hearth in the centre of the room constructed of four baked bricks, two courses tall (Locus 3).¹⁵ Room 21, the other room connected to the courtyard, was labelled as "general domestic" in the fieldnotes. Within this room was found a single ceramic vessel (artefact number unknown) near the centre of the room. A doorway in the south wall of 21 led into 24, a smaller room containing

¹⁴ Bache refers to the rooms at Tell Billa as the Square of which they were part (V, W, X) followed by the room's number. I have elected to simply use the room number for clarity, as there is no overlap.

¹⁵ Bache 1935. Loci were recorded and drawn by the excavators with reference to the room they were found in, but exact physical locations within the rooms remain uncertain. "Loci" in these instances refer to either permanent features of the houses (such as toilets and pits) or significant artefact finds (such as tablets, large pots, etc.).

House A

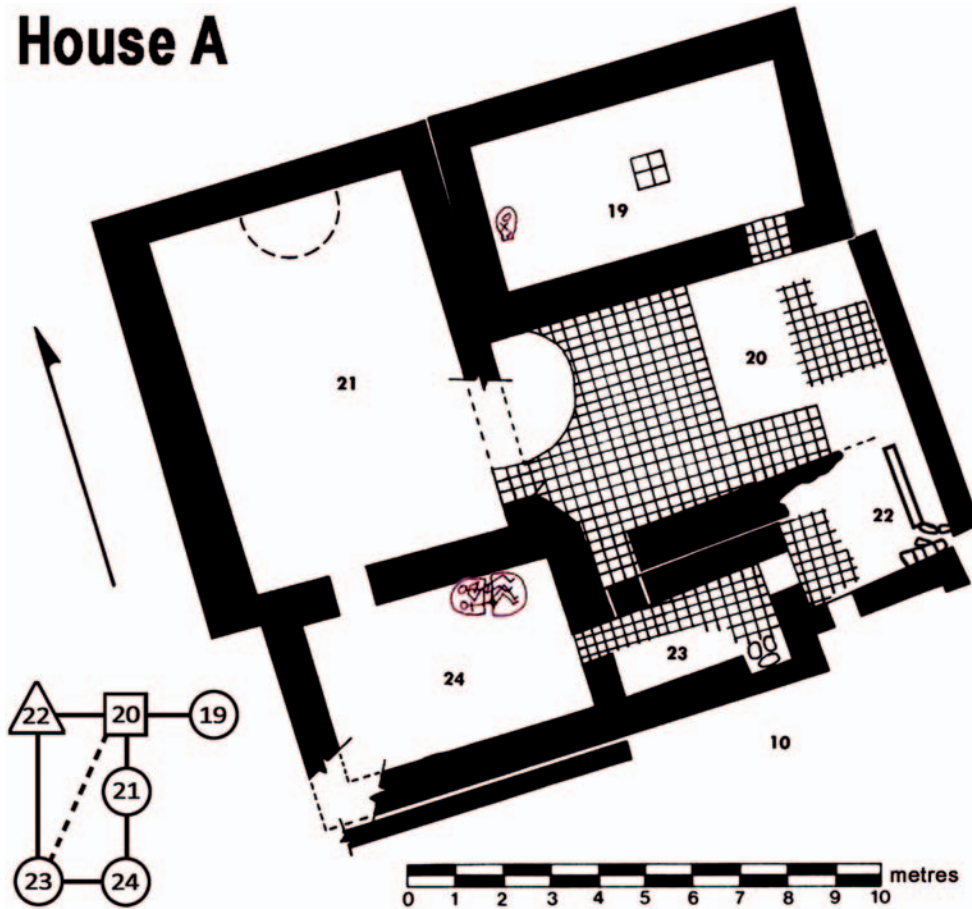


Figure 4. House A at Tell Billa, Levels IA and II, with spatial syntax chart (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

one jar with unknown purpose, but possibly for storage. While Bache's interpretation of the architecture withstands scrutiny and comparison to other archaeological material, it is important to address the likelihood of multi-purpose rooms. Seeden's 1985 ethnographic study notes that many rooms in similarly built houses of Iranian villages served as living rooms, hosting areas, and sleeping areas for the entire family. Objects such as mortars and other tools could be brought into these rooms to turn them into temporary production areas and the like.¹⁶ In fact, the only areas with one purpose were often storage rooms. Similarly, Salvin emphasises this variability in use of space in her seminal 2017 monograph on households in Mesopotamia. Taking this into account, we must acknowledge the likelihood that many of these spaces held secondary or even tertiary functions. In rooms with no immediately obvious function, it is probable that there were many (in this case, rooms 19 and 21).

¹⁶ Seeden 1985.

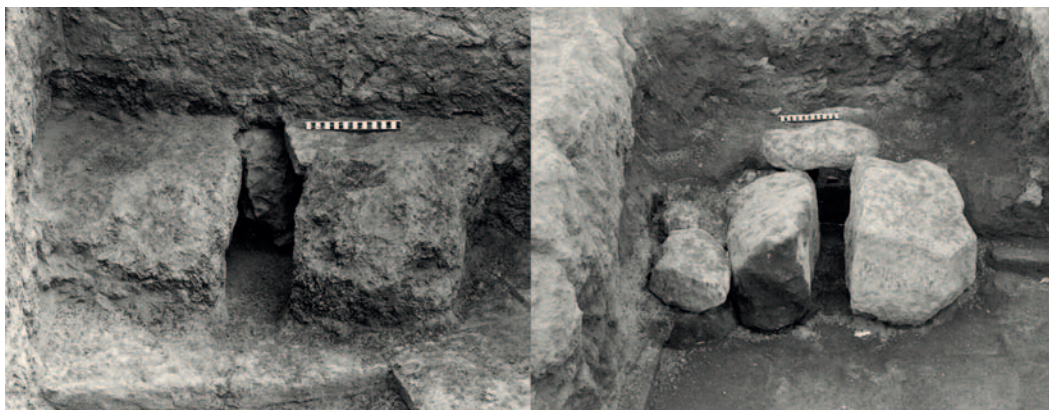


Figure 5. Examples of toilets from room 31 (left, mudbrick) and 23 (right, stone), with drains underneath leading under the back walls (Penn Museum Archives).

From 24, the toilet (23) could also be accessed. The toilet room was paved with baked brick and contained a stone block toilet built in a niche in the south wall, undoubtedly so as to drain via a stone-built channel out onto the street (for examples of toilets found in Levels II and IA of Tell Billa, see Fig. 5). As well as the door leading between 20 and 23 that was sealed in Level IA, excavators uncovered proof of an upper phase in rooms 19, 21, 24, where a second level of pavement existed higher than that of the original. A bench was placed along the south external wall of Room 24, providing a decent vantage point from which to observe plaza 8o.

House B

At its greatest extent (during the time of Level IA), House B consisted of rooms 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36 (Fig. 6). Originally it consisted of Rooms 29, 30, 31, 32, 33, 34, and 35. This house was entered from street 51 through a doorway in the west wall of the vestibule 32. A stone threshold kept debris and runoff from the streets out of the home. A door socket made of stone was set into the pavement of room 32, just inside the threshold. Room 32, paved with brick, opened directly onto courtyard 30, also paved with baked brick and forming the centre of House B. Parts of the courtyard were paved with stone cobbles. At some point in its inhabitation, a screen wall was built, shielding the courtyard from the view of the road and affording a degree of privacy. While Seeden (I believe correctly) problematises the interpretation of 'privacy' within the household in the same vein of that valued in the western world, privacy shielding the inhabitants of the house from the outside is today a common concern in Middle Eastern circles.¹⁷ All of the original rooms of House B had doors opening onto the courtyard (excepting room 31, which originally opened onto 32). Room 33 was entered via a doorway in the courtyard's west wall. Its use is unknown, but likely connected to 34 by a door in its eastern wall.

¹⁷ Seeden 1985.

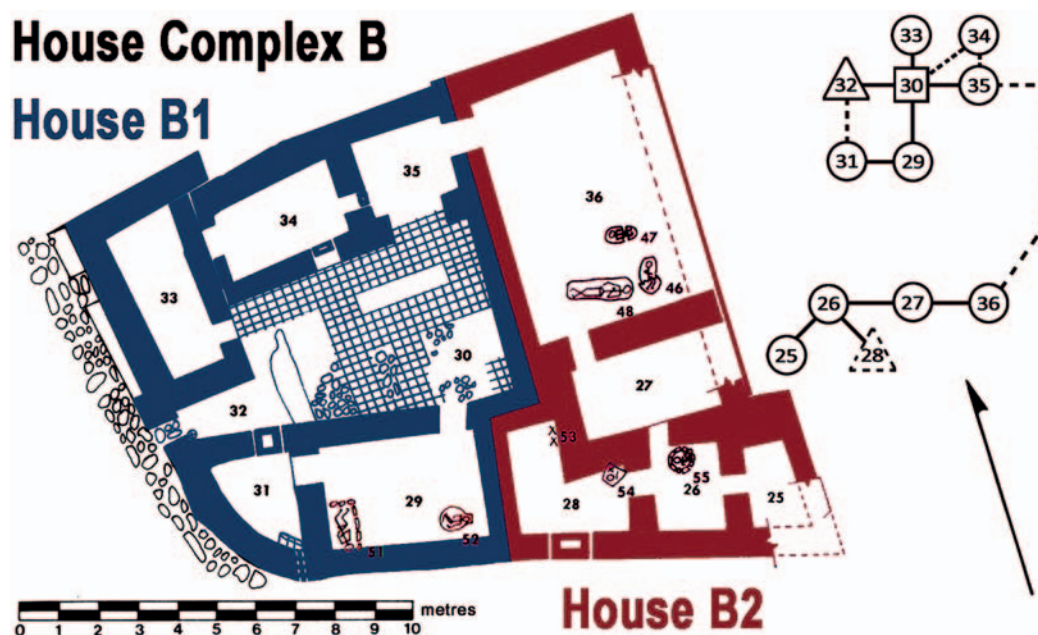


Figure 6. House Complex B at Tell Billa, Levels IA and II, with spatial syntax chart (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

In the original occupation of House B (B1), 34 connected to rooms 33, 30, and 35. Room 35 originally was a small corner room off the courtyard. In the original phase of the house, 29 and 31 were the only other rooms; 29 connecting to the courtyard and 31 serving as the house's toilet room. Unlike House A, House B's toilet was constructed of mudbrick with fragments of baked brick acting as a seat on each side of the toilet. Though not indicated in the plan, Bache writes that the floor of 31 was paved with baked brick.¹⁸ A stone drain led from the toilet through the curved wall of 31 and out onto the street.

Additional data about the depth of floor levels (or any additional floors) has not been preserved regarding House B. However, at some point in its occupation, additional rooms were added to the house; rooms 25, 26, 27, 28, and 36 (B2) — likely once a discrete house — were acquired by the family of House B. The original entryway of the once-neighbouring house in room 28 was blocked, and an internal doorway to the new rooms appeared in the east wall of room 35, which likely now just served as a passage between the courtyard and room 36. Room 36 was a large room constructed of “the usual” mudbrick pavement and walls. Within the room, however, were two features: Locus 4 was an *in situ* pot stand located near the centre of the room, and Locus 9 was a limestone statuette — very similar to examples found in the north part of the mound during previous seasons — leading to the possibility that this room was employed for cult practices. This is further supported by the presence of several burials underneath the floor of this room. Room 36

¹⁸ Bache 1935.

led via a doorway in its south wall to room 27. Room 27 connected to 26, which connected rooms 28 (the original vestibule) and 25 to the rest of the house. Room 25 contained an oven (Locus 19), and Bache suspected it was once a kitchen.¹⁹

Also during House B's expansion there were several renovations to the original part of the house: the doorway between rooms 31 and 32 was blocked making 31 only accessible through 29 and relatively distant from the centre of the house. Room 34 was completely sealed and incorporated into the neighbouring House C to the north.

House C

House C was located directly north of House B and consisted of rooms 46, 47, 48, 49, and later 34 (Fig. 7). Room 50 was possibly also included in this complex. In the original layout of the house, room 46 served as the main entryway. Despite Bache's reluctance to identify House C as a house structure, he was confident that a street ran north of rooms 46, 49, and 50 — resulting in a discrete block of connected rooms. Room 46 connected the road to room 47, which likely served as a central courtyard of the house, though only paved in mudbrick. A doorway in the north wall of 47 opened into 49. Room 49 contained two walls which jutted towards the centre thus creating compartments. Because of this, Bache identified this room as a stable for livestock; as this seems unlikely, it was probably instead used for storage.²⁰ A drain in the north wall of 49 could have been used to clear out animal waste into the street on the other side. Returning to possible courtyard 47, a doorway in the west wall led to room 48. Room 48 is notable in that this is where a cache of cuneiform tablets (Locus 31) was uncovered in the third season. They were found piled in a broken tray just under the foundations of a stone wall from Level I.²¹ Additionally, room 48 is where most of the burials from Levels II and IA were present. It is interesting to note that the relationship between archives and burials seen at Aššur is reflected at Tell Billa as well.²²

At a later point in House C's occupation, room 34 was acquired from House B. As discussed above, 34's doorways into House B were blocked and a new doorway was made in 48's southern wall, connecting the two. The general use of 34 in House C remains, like its function as part of House B, uncertain — likely serving multiple functions as discussed above in House A. Also later in House C's occupation, the entryway formed by 46 was blocked, essentially cutting off street access to House C. However, it is possible that at that time the house was then accessed via the roof, although the lack of preservation of the roof necessarily confines this to speculation.

Included in the vicinity of House C is 50. No doorways connected room 50 to House C; its main entrance was onto street 51. It was paved in mudbrick, with mudbrick walls, but the presence of a stone toilet like that seen in room 23 led Bache to suggest that this was a "public" toilet.²³ It is unknown whether a drain was present in this room.

¹⁹ Bache 1935.

²⁰ Bache 1935.

²¹ Though the findspot of the tablets was not originally fixed, based on a reconstruction of the findspot description — where it was identified only in relationship to the Level I remains — the only spot in which they could have been uncovered was in room 48. It is for this reason that I identify 48 as the room which held the house's archive, although it could also have been employed for other purposes.

²² Pedersén 1986; Creamer 2020.

²³ Bache 1935.

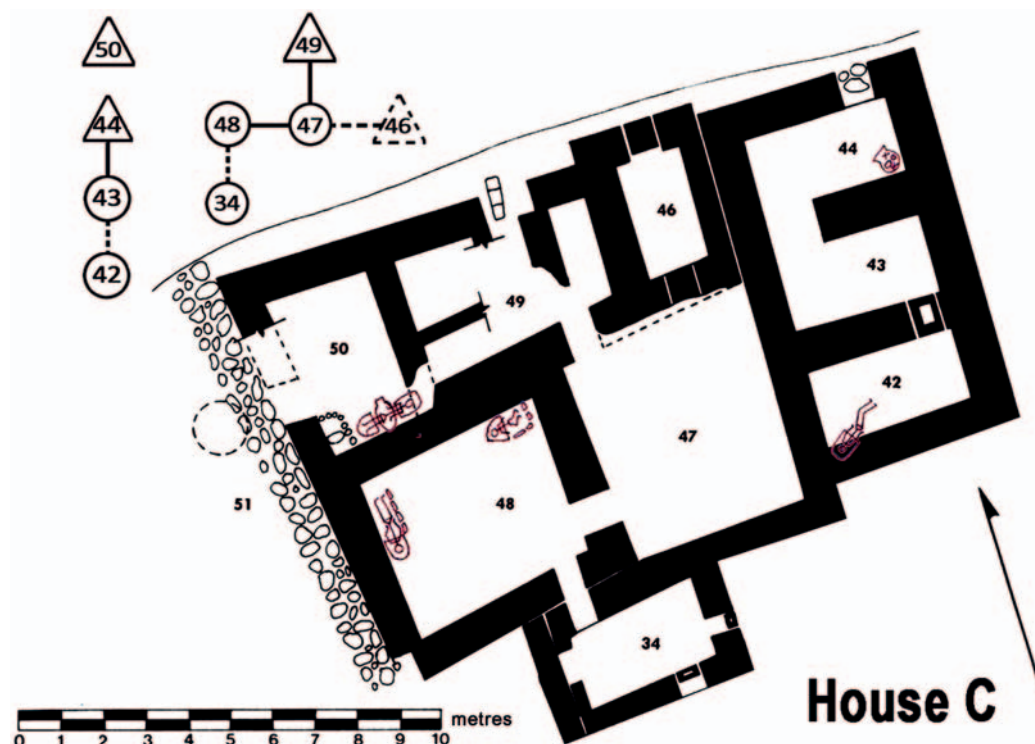


Figure 7. House C at Tell Billa, Levels IA and II, with spatial syntax chart (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

Left unmentioned in the above survey are rooms 44, 43, and 42. It is uncertain whether these rooms belonged to any of the neighbouring house complexes, or whether this is an example of a small discrete unit. It was entered via a doorway with a stone threshold connecting the north road to room 43. Similarly, rooms 43 and 42 were also connected via a doorway to the south. At a later phase, this doorway was blocked up, and 42 was either left sealed or accessed via roof. No indication was given as to any of these rooms' uses.

House D

To the south of street section 73 lay another complex, excavated in the third season but unidentified as anything beyond a cluster of rooms. What I identify here as House D consists of rooms 74, 74a, 75, 76, 77, 82 and 82a (Fig. 8). Also likely included (though not connected by a doorway) are rooms 78, 79, and 81. Room 74a formed the house's main entranceway. Several large stones at the entrance onto street 73 acted as the threshold. This corridor also served as a drain — a stone-lined drain ran from courtyard 77 through 74a into the street. A doorway in the west wall of the corridor led into room 74. Within the room, next to the doorway, was a stone door socket. Entryway 74a also led into courtyard 77, which was paved with a combination of

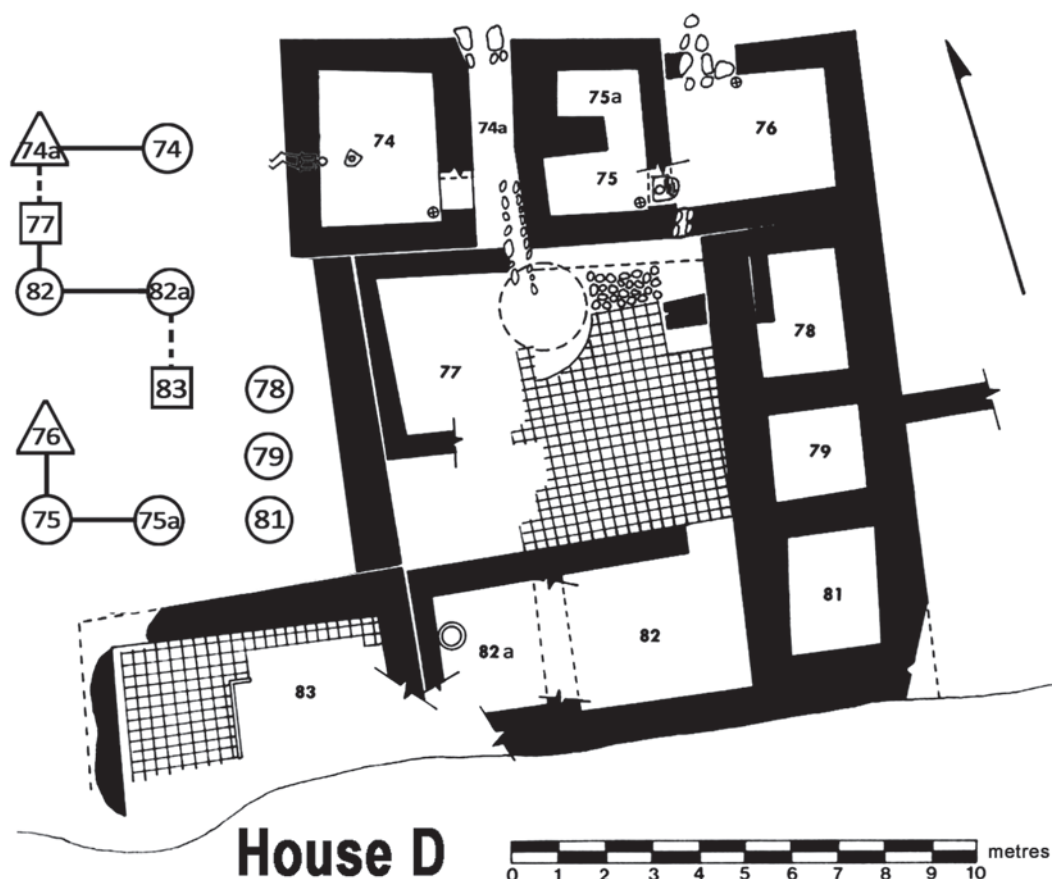


Figure 8. House D at Tell Billa, Levels IA and II, with spatial syntax chart (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

baked bricks and stone. Loci 18 and 5 were present near the centre of the courtyard; Locus 18 was a greenware stoppered jar inset into the floor of Level II. Locus 5 was below-ground oven made of clay, with burning residue on the inside. That it was used as an area for cooking seems likely.

Courtyard 77 had a doorway in its southern wall that led to room 82, otherwise unremarkable but for a deposit of various stone beads in the northeastern corner of the room, unassociated with any burials. Though the wall was too damaged to reconstruct entirely, there was likely a doorway in a complete western wall of 82 that led to room 82a. Room 82a contained Locus 1, which was an oven in the shape of a beehive. This room formed the very back of the house. It is possible that rooms 75 and 76 were also connected to courtyard 77 via a stone drain, constructed in a later occupation of the house. Access to these rooms was gained only via street 73 or by a possible roof entrance. A stone threshold and stone door socket made up the street entrance to room 76. A reconstructed doorway led into room 75, also with a stone door socket. Room 75 was divided into two compartments by a wall jutting out east–west into the centre of the room. The north

compartment 75a contained an oven and an inset mortar, clearly supporting identification as a kitchen (although Bache only believed the room, based on its size, suitable for storage).

Also unconnected to the main House D were rooms 78, 79, and 81. These rooms must have been accessed through a roof entrance, as there are no doorways or passages connecting them. Bache theorised that they might have been small shops opening onto plaza 80 to the east, but admits this identification is problematic.²⁴ More likely, they were used as storage for House D. An upside-down jar was found in room 81, and a low bench along the west wall of room 78 might have been used to hold objects.²⁵ Burials in 81 do nothing to elucidate the living use of the room, but it may have very well functioned as the house's *de facto* tomb.

House E

House E is comprised of a large multi-complex set of rooms, though clearly related to one another through the shared use of entrance/courtyard 61. I have divided the house into two complexes: E1 in the north (comprised of rooms 53, 54, 55, 56, 57, 58, 58a, 59, 60, and 61) and E2 in the south (rooms 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72) (Fig. 9). Both complexes share rooms 61, 61a, and possibly 84, a vaulted tomb located to the west of the inhabited spaces and possibly accessed via passage 61a. Room 52 in the north might have also belonged to E1.

As mentioned above, the entire House E complex was entered via a doorway off street 51 into vestibule 61 which was paved with a combination of stones and baked brick. This area was clearly an open courtyard, with the stone cobbles continuing westward into corridor 61a. Off 61a was room 60 to the north. A stone door socket just inside the room's entrance allowed the room to be closed to the outside. To the east of room 60, accessed off courtyard 61, was room 59. A door-sill 30 cm higher than the pavement of the room would have kept out water and debris from the courtyard. Leading deeper into E1 was corridor 58a leading into room 58 via a doorway in the east wall. No indication is given of 58's use. Another door off 58a led into room 57 which was a toilet. The room was paved in stones and a stone toilet at the east end of the room drained into street 51. To the north, corridor 58a opened into room 55, where a stone door socket shows that 55 could be closed off from 58a. Bache believed — presumably due to the presence of three ovens²⁶ — that rooms 55 and 53 were open to the sky. Room 53, accessed by a doorway in the east wall of 55, was undoubtedly a kitchen. South of 53 lay room 54, with no doorways found. Bache speculated that it served as a washroom, as it was paved with baked brick and drained out onto street 51 underneath the east wall.²⁷ It could have also served as a place for other activities which required drainage — certain craft production, for example (that is, cloth rinsing/dyeing). It was probably accessed by roof. On the west wall of room 55 was an entrance to room 56, which also had doors leading to the north and west (unexcavated). The use of room 56 are unknown.

The southern portion of the complex, E2, is accessed through corridor 66, which connected the central courtyard 61 with room 67 to the south. Room 67 was partially paved with stones, but no other indication of its use was given. Through a door in its eastern wall it opened onto

²⁴ Bache 1935.

²⁵ Seeden 1985, p. 143.

²⁶ Bache 1935.

²⁷ Bache 1935.

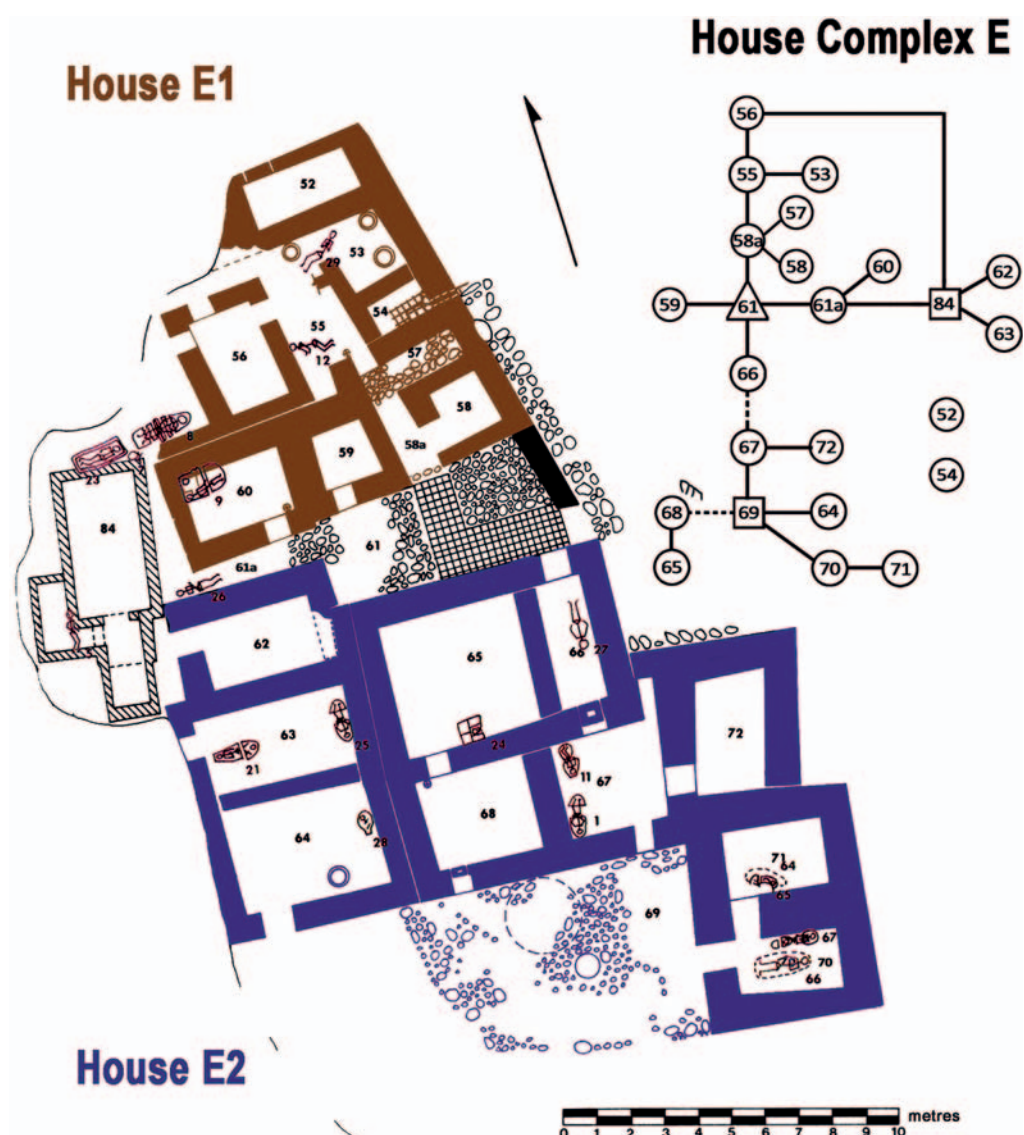


Figure 9. House Complex E at Tell Billa, Levels IA and II, with spatial syntax (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

room 72 — another room likely used for general domestic purposes. At the south end of room 67 was a doorway leading into a second courtyard, 69. Courtyard 69 was entirely paved with stones. Loci 26 and 27 were found in this courtyard: a pot and a large storage jar sunk into the ground so that the rim was flush with the pavement. (If this area was open to the elements, it is curious that this jar would have been largely unprotected, even if shut with a lid). A doorway in the east wall of courtyard 69 led into rooms 70 and 71, identified as “general domestic” spaces without

any further characterising features. A doorway in the north wall of the courtyard, to the west of the doorway from room 67, led to room 68. Locus 28, a large pot, was recovered from the southeastern corner of this room. A door socket was placed next to the northern doorway leading into room 65 which was unidentified beyond “general domestic”. Room 64 was also accessed off courtyard 69. In it, at the south, was Locus 24 — a beehive type oven — meaning that this room was likely the kitchen for E2.

On the western side of E2, rooms 62 and 63 were accessed by doorways facing west, where the plan depicts vaulted tomb 84. The tomb was below ground and it is probable that this was originally a third open courtyard of the House E complex. However, as very little information was given about the living levels under discussion (Levels II and IA), in this area it is difficult to reconstruct what the rest of this complex may have looked like. Rooms 62 and 63 have no defining characteristics as to their use.

At some point during the occupation of House E, the doorway between 66 and 67 was sealed. This could indicate that E2 was sold to a different family, and therefore access would have been granted off another street, likely to the southwest. It is unknown how this would have affected access to, or ownership of, the vaulted tomb.

House F and House H

Houses F and H, located on the northeastern part of Area VII, are both only exposed in small portions, making the identification of the extent of each house, and the use of the individual rooms, questionable. As far as the excavation revealed, it seems that House F included rooms 38, 39, 40, 41, and 37 (Fig. 10). House H encompassed rooms 13, 13a, 14, 15, 16, 17, and 18. House F was accessed through a doorway in the northern wall of room 40, which likely opened onto the street that Bache assumed ran east–west. A stone threshold filled the doorway with a drain of stones running from that threshold southeast to the doorway in room 40’s east wall leading into 39. Room 39 was possibly the main courtyard of House F and it was paved with baked bricks and some stones. In the northwestern corner of the courtyard was a baked brick platform with a rubble foundation. Next to this to the south was a large jar sunk one-third of the way into the floor. Near the south wall of the courtyard was a low wall made of rubble roughly 35 cm in height. At the east end of courtyard 39 was a raised platform also constructed with rubble. A door in the northern wall of 39 possibly opened onto a street. There were signs of burning around this doorway and the outside of the wall. The northeastern corner of this room was left unexcavated.

A doorway in the south wall of 40 led into room 41. Room 41 was partially paved with stones, but no other characteristics reveal anything about its function. A thin wall separated room 41 from 37 to the south, connected by a doorway. Though not accessible by rooms currently exposed, it is possible that room 38 was part of House F. The room itself was very large, containing Locus 23, a large storage jar sunk partially into the floor in the southwestern corner.

It is unknown where House H was entered. Space 13a formed the main courtyard, paved in stone, while 13 formed a southern lobe of the courtyard. Room 14 was located directly west of 13 and accessed through a doorway in the south wall of courtyard 13a. Room 16 was also accessed off of courtyard 13a and was a corridor into other areas of the house. A doorway in 16’s southern wall led to room 15, which likely served as an area for storage. In the northern wall of 16 was a

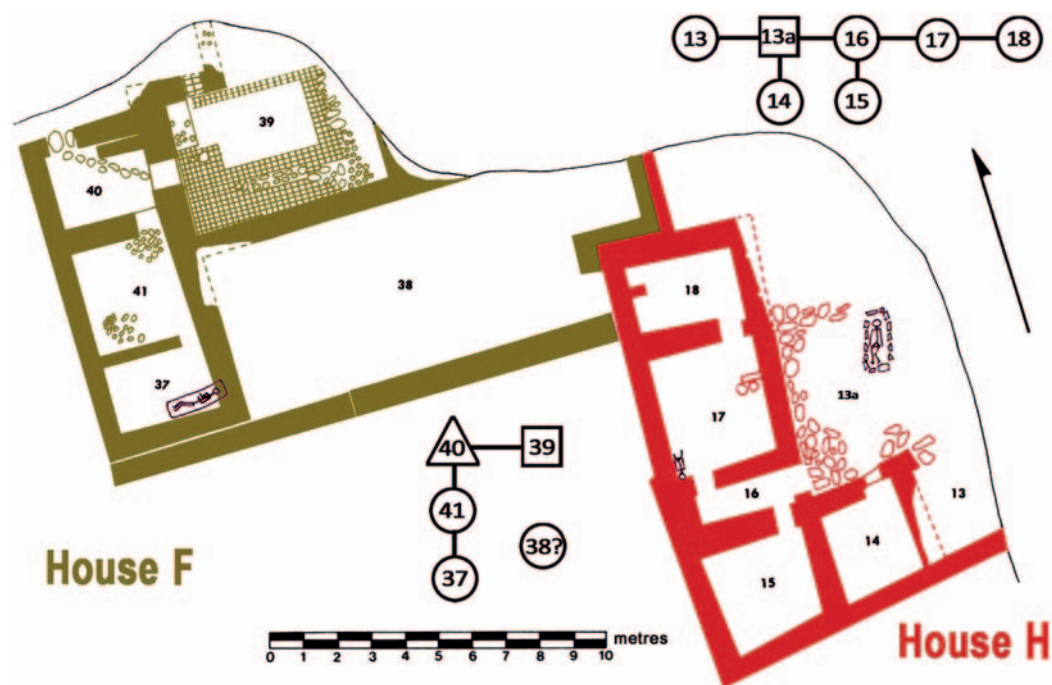


Figure 10. Houses H and F at Tell Billa, Levels IA and II, with spatial syntax chart (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

doorway leading into 17. A *tannur* oven, a storage jar, and a stone mortar were all set into the pavement of this room, clearly supporting its identification as a kitchen. In the north wall of 17 was the entrance to 18, in which a cache of bronze vessels was recovered, including the inscribed vase which allowed the excavators to identify the site as ancient Šibaniba.²⁸ Also in 18 was one wall projecting from the western wall of the room. Bache suggested that these might have been used as “bins” for food or supply storage.²⁹ A low bench (20 cm high) in the centre of the room might have served as a raised shelf.

House G

House G, similarly to Houses F and H, likely had significant parts that were never excavated (Fig. 11). In addition to this, heavy erosion towards the southern edge of the mound severely damaged the mudbrick architecture, making it impossible for the excavators to plan. House G was entered by a door off street 12, where a stone threshold prevented water and debris from entering the home. This doorway led into room 11 on the east side, and room 6 on the western side. Room 11 likely served as a corridor. Room 6 was partially paved with stones and a doorway in its eastern

²⁸ Bache 1933.

²⁹ Bache 1935.

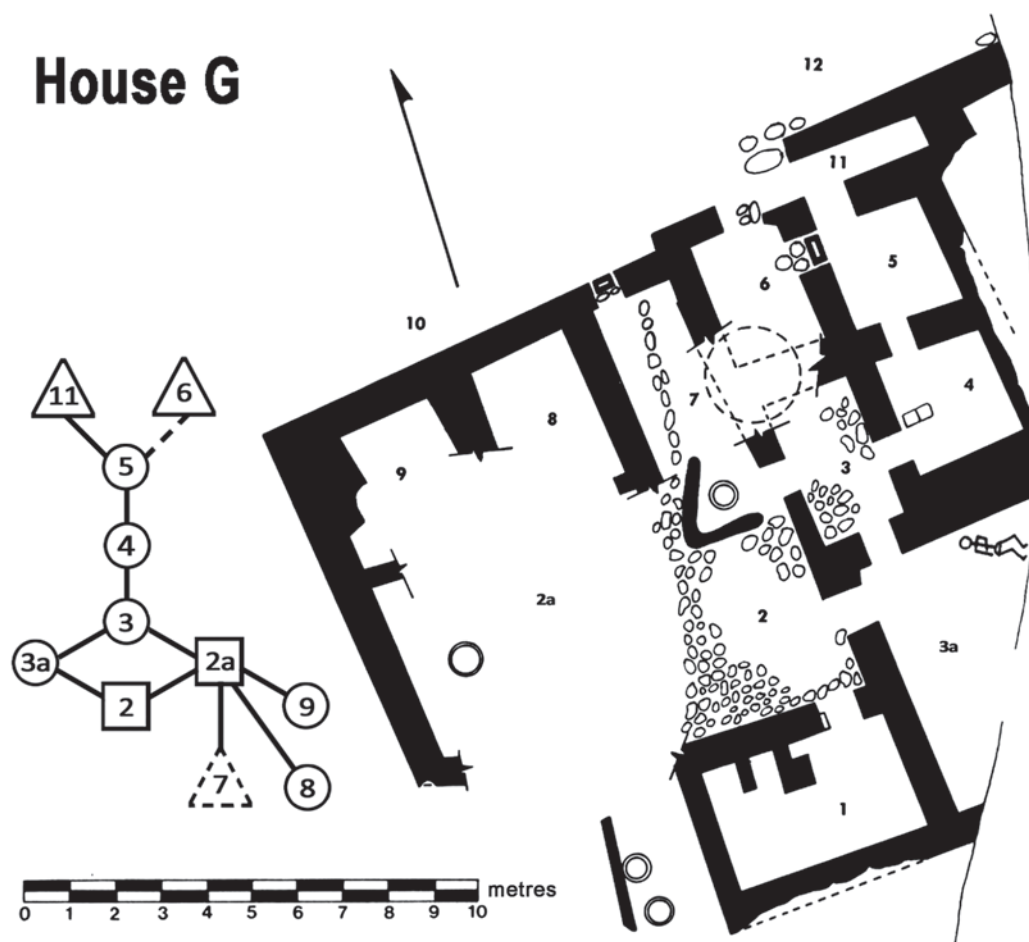


Figure 11. House G at Tell Billa, Levels IA and II, with spatial syntax chart (triangles signify entrances, squares signify open courtyards, circles signify rooms) (after original plan by Bache 1935, courtesy of the Penn Museum Archives).

wall led into room 5 before being blocked at some later date. Room 11 also had a southern doorway leading into room 5 from the north. A doorway in the south wall of room 5 led to room 4; inside the room against the western wall was a low platform of two baked bricks adjacent to one another, which Bache postulated may have been a hearth.³⁰ Just south of the hearth in the west wall was a doorway leading to room 3, paved with stones. In room 3 were two doorways — one leading south into an unexcavated room (3a), and one to the west leading into a small alcove comprised of one large wall to the east and a small curtain wall in an “L” shape, in which is contained a sunken jar. This area was likely exposed to the sky and served as one of the house’s kitchens, along with room 7 to the north and 2 to the south. A stone drain ran from the courtyard 2a through room 7

³⁰ Bache 1935.

and underneath the north wall out into street 10. A doorway in the wall bounding room 2 to the south led into room 1. Several walls projecting from the north wall of room 1 could have created niches for storage.

The area west of rooms 2, 3a, and 7 are poorly preserved. Room 2a was likely an open courtyard. Locus 2a was located in the centre of it and was a beehive oven. To the south, also likely connected to 2a, was a thin wall adjacent to two more ovens (Locus 13). Undoubtedly these rooms formed the kitchen complex. The rooms 9 and 8 to the north of 2a were also poorly preserved, and little can be identified as to their use.

Bache suggested that the buildings to the east and west of 2a acted as small shops to comers and goers of the tell through plaza 80.³¹ The two ovens situated behind a small curtain wall to the east of the plaza might very well support this — perhaps here a shopkeeper baked food to sell hungry city-goers.³²

The artefacts

Because of the lost records of the Assyrian Expedition to Tell Billa, our discussion of the particulars remains fragmentary. This includes the records of the artefacts found. For the third season, the information attached to finds was only recorded on individual notecards, later entered in a simplified form in the season's register. Exact object provenance was only recorded in burials or in loci, but were assigned, at most, to rooms, and more often only assigned to squares and levels. In my presentation of the material, I reconstruct as fully as possible the provenance of the artefacts. Provenance in these records is limited only to level and square (V6, V7, V8, W6, W7, W8, X6, X7). These 20 × 20 m squares often contained multiple structures, and therefore matching objects to the room they were found in — to say nothing of their exact context — is a matter of speculation. Furthermore, all artefacts were recorded as hailing from Level IA in the publication, although they were originally distinguished between Levels IA and II in field notes. I present here the artefacts found in non-burial contexts in Table 2, endeavouring to use the artefacts to elucidate possible functions of parts of the structure. Despite contextual shortcomings we can notice some trends of interest: most notably, numerous seals were found in Squares V7, W6, and W7.³³ Ceramics for cooking and storage are also popular, and unfortunately cannot be used to make assumptions about any one space. The prevalence of personal adornment items (beads, rings, pendants) is also notable, as we would expect these objects to be present in graves but less so in domestic contexts, possibly indicating the equivalent of 'bedrooms' where personal objects might have been kept. Various small tools were also present, particularly those used in spinning and weaving and leatherworking.

Overall, the item assemblages give an impression of typical household functions: minor craft production activities, administration in the form of seals, storage and food preparation, and personal adornment items. There is nothing to suggest among the small finds that these buildings were anything but residences operating in standard capacity as a household. Even House G betrays no specific commercial function in this regard, despite Bache's suggestion of it serving as a shop.

³¹ Bache 1935.

³² See Creamer 2021b for a discussion of the entrances onto the main mound.

³³ Matthews 1991.

| Objects from Levels IA and II | | | | | | | | |
|-------------------------------|----|----|----|----|----|----|----|----|
| | V6 | V7 | V8 | W6 | W7 | W8 | X6 | X7 |
| arrowhead | 1 | 1 | 3 | 2 | — | 1 | — | — |
| beads | 1 | — | 14 | 4 | 1 | — | — | — |
| blade | — | — | — | 1 | 1 | — | — | — |
| bowl | — | 2 | 3 | 7 | 1 | 1 | — | — |
| bracelet | — | 1 | — | 1 | — | 1 | — | — |
| celt | — | 3 | 1 | — | — | — | — | — |
| cup | — | — | 4 | 7 | 5 | 2 | — | — |
| cylinder seal | 1 | 3 | 1 | 4 | 4 | — | 1 | 1 |
| ferrule | — | — | — | 1 | — | — | — | — |
| figurine | 1 | 5 | 3 | 3 | 2 | 4 | — | 1 |
| finger ring | — | — | 2 | 1 | — | — | — | — |
| jar | 4 | 7 | 9 | 12 | 7 | — | — | — |
| ladle | 1 | — | — | — | — | — | — | — |
| lamp | — | — | 1 | 1 | — | — | — | — |
| mace head | — | — | — | 1 | — | — | — | — |
| mortar | — | — | 1 | — | 2 | — | — | — |
| mould | — | — | 1 | 2 | — | — | — | — |
| nail | — | 1 | 4 | — | — | — | — | — |
| needle | — | 3 | 1 | 1 | 2 | 1 | — | — |
| pendant | — | — | 3 | 1 | 1 | — | — | — |
| pin | — | — | 1 | 1 | — | — | — | — |
| plaque | 1 | — | — | 1 | — | 1 | — | — |
| plate | — | 3 | — | 7 | 2 | 3 | — | — |
| pot stand | — | 1 | — | 1 | — | — | — | — |
| rosette | — | 1 | — | — | 1 | 1 | — | — |
| scaraboid | — | 1 | — | — | — | — | — | — |
| shuttle | — | — | — | — | — | 1 | — | — |
| spindle whorl | — | 2 | — | — | — | — | — | — |
| spouted jug | — | 1 | — | — | — | — | — | — |
| stamp seal | — | — | — | — | 1 | — | — | — |
| stopper | — | — | — | — | 1 | — | — | — |
| strainer | 1 | — | 1 | 1 | — | — | — | — |
| misc. tool | — | 1 | 1 | — | — | — | — | — |
| tray | 1 | 1 | — | 1 | — | — | — | — |
| wall nail | 1 | — | 1 | — | — | — | — | — |
| weight | — | — | 2 | — | — | — | — | — |
| Grand Total | 13 | 39 | 60 | 59 | 31 | 15 | 1 | 2 |

Table 2: The small finds of Area VII at Tell Billa, Levels II and IA (data from documents in the Penn Museum Archives).

The burials

In lieu of exact artefact context, one way to understand the structure of the households is to look at the inhabitants themselves. Domestic burials have always been a source of information on familial structure in Mesopotamia, owing in no small part to the ease of association between the individuals buried within a home and the home itself. This basic approach likewise gives insight into the family structure of these houses at Tell Billa.

All houses identified as part of Level II/ Level IA contain at least one burial. The houses with most burials are House Complexes B and E, with 8 and 20 burials respectively. This total is not counting the deceased which may have occupied tomb 84, which likely belonged to the House E complex.³⁴ On average, each of the other houses all have around two burials.

House Complex B contained five different types of burial: two graves within an unbaked mudbrick enclosure (no larger than the bodies), two composite graves of multiple materials, two in single ceramic vessels, one sherd grave, and one earthen pit grave. Most of the burials in House B's earliest phase (B1, Level II) were found in rooms for general domestic use. All burials in House B1 were from Level II, while later it seems burials begin to take place in the newly added rooms after House B acquired them. This is likely because these were now the new 'backrooms' of House B. Three burials were all located next to each other within room 36, containing two adults and a child. These were likely all members of the same family, possibly parents and a child. Burying different people in different spaces within the houses, both before and after the new rooms of B2 were added to B1, could indicate different nuclear families residing within the same household.

Generally, House Complex E had the widest variety of burial characteristics. On one hand, this could be due to also having the *most* burials out of any house (20 burials). Even so, however, we would expect a more coherent set of characteristics in the burials than is displayed in this household. If we consider House Complex E as occupied by one extended family unit, then there was a preference towards earthen pit burials, ceramic vessels as containers, and composite burials. Considered separately, House E2 showed slight preference towards ceramic vessel and composite burials, but still harboured no less than six different types of burial. Without more evidence regarding the context or the structure of the household's occupants (such as would be told by an archive, for example), speculation must necessarily be limited. However, I venture a suggestion that this could indicate a complex household structure, including members with different origins, or even foreigners married into the main family (based on the wide variety of burial characteristics). The occupants of House Complex E could have been an affluent Assyrian family — possibly even from Aššur itself — that settled at Tell Billa during Assyrian hegemony in the late second millennium. Vaulted tomb 84 would have served as a typical Assyrian family burial place.³⁵ The household may have been so large as to contain slaves or live-in workers, which could also explain the other burials outside of the tomb, in seemingly random locations within the house.

Somewhat surprisingly, it seems that the types of graves within some of the other households also varied greatly; as already mentioned, House Complexes B and E had a wide variety of burial

³⁴ The tomb was later used as a cistern and, as such, any material in it was emptied and lost. However, the three burials in the vicinity of the vaulted tomb (and which likely predated it) are included here as belonging to the E complex.

³⁵ For similar contemporary examples from Aššur, see Pedde 2015.

types. House A only comprised burials contained within ceramic vessels, but the types of vessels themselves differed. House C seemed to prefer composite burials, but also contained vessel burials, including the only example of a cremation at Tell Billa.

In sum, the types of graves at Tell Billa largely adhered to contemporary Assyrian standards seen elsewhere.³⁶ Generally, the graves contained few objects of modest types, with some exceptions. Common grave goods included wheel-made ceramic jars and bowls of low quality, small bronze rings and weapons, and beads of stone, metal, and paste. While several pieces were of gold, the overall impression is of humble burials where the dead were deposited with meaningful objects and small offerings of food or liquids, indicated by animal remains in some of the vessels. Instead of a value system placing different value on adults or youths, it seems that divisions in the grave goods might have been instead affected by a household's wealth and ability to supply the dead.

In general, House E2 had the richest graves, followed closely by E1. House B's graves seemed to show a consistent degree of wealth, while the same was true of Houses C and D. House A, however, had graves which varied widely in wealth — one grave having nothing, the other having objects of gold and precious stones. The graves overall seem to have a variety of object numbers — averaging around two per grave, usually consisting of a ceramic vessel and string of beads. Within House Complex E, House E2 harboured the widest variety of grave good amounts, while House E1 had the graves with the most objects. Overall, this paints a picture of households of mostly average wealth, with a variance in 'status' of individuals within households, but not necessarily *between* households.

Additionally, because the boundaries of these houses are only estimates, it is impossible to make these statements with certainty. In cases like House C, where rooms 42, 43, and 44 have been included in this analysis but may have not been a part of the house, it is important to keep in mind that these generalisations are tentative.³⁷ However, with the estimated occupation of the Level II/ IA town lasting for several centuries, one would expect to find many more burials associated with the houses than is currently known. This begs the question: where were other members of the family buried? And what was the deciding factor in where they were buried? There are not enough burials in each house to account for the several generations they were undoubtedly inhabited.

Also contributing to this question, but possibly answering it as well, is the age division of these house burials. In all houses except F and H, there are generally comparable numbers of adults and children buried within the houses. In comparison, at other sites (such as Assur), adults make up the majority of burials in domestic spaces.³⁸ This indicates that children may have been prioritised for domestic burial at Tell Billa, while adults may have been buried elsewhere such as in a cemetery or in the Lower Town. As one possible explanation, I mention vaulted tomb 84, which would have been a prime example of a place to bury the 'missing' deceased. Although only one tomb was recovered in Area VII, Speiser and Bache noted regularly the large numbers of tombs found in the Assyrian levels in the northern part of the site.³⁹ It is possible that had they simply expand the excavation area that the excavators would have discovered more such tombs, partially answering our question.

³⁶ Pedde 2015.

³⁷ Though removed in space and time, examples of three-room residences are known to us from other sites, such as Residence XXXIII at Khafajah (Delougaz *et al.* 1967, Pl. 8). This type of spatial variability in inner-town residences should serve as a reminder that our interpretations would benefit from clearer surviving records.

³⁸ Pedde 2015.

³⁹ Correspondence, Penn Museum Archives.

The texts

The epigraphic material sheds further light on who might have resided within these houses. Texts from Tell Billa fall into two categories: documents from what was likely the residence of a local governing family and dating to the Middle Assyrian period, and texts from the Neo-Assyrian period from the ninth century. Private transactions of the family of *Sîn-apla-ēriš*, *hasilbu* of Šibaniba, make up the Middle Assyrian corpus.⁴⁰ Loan receipts, debt collection, public official orders regarding allocation and collection of resources, and a number of letters are a part of the family archive, giving some insight into the inner workings of not only the provincial governing of Šibaniba, but the elite family as well.

The principal figures appearing in these texts are Aššur-kašid (the father of *Sîn-apla-ēriš*, but residing out of Tell Billa) and *Sîn-apla-ēriš* — likely the highest-ranking governing official at the town. Private transactions were mostly loan agreements for barley or tin, where the heads of the household acted as creditors.⁴¹ Unfortunately, the letters of a personal nature were poorly preserved and can tell us little about the social makeup of the household. Yet, these documents still manage to establish the household as an economic *and* political unit, with the heads of household as the main patriarchal actors. Furthermore, the highly administrative nature of their position dovetails with the aforementioned numerous seals discovered in the town.

Households of the Late Bronze Age

Three factors affect a household: the availability of space, building materials, and the requirements of the household itself.⁴² The definition of house and household of course, carry their own connotations, the house being the “container” (or, one of many) in which the household resides. Though the size of a house and its physical features may give a bit of insight into the actual members/organisation of the household, this type of analysis is limited.⁴³ In our case, we have been able to add to this architectural data information gleaned from both textual material and burials.

The central courtyard plan stays strong, as in the rest of Mesopotamia. Access to the central space of the homes is usually indirect. Space for storage and food production is present in each house. Social stratification seems present even among the houses of Area VII, with the possible exception of what I have dubbed House Complex E, which, as discussed, could correspond to the extension of the family unit. Overall, the houses give an impression of an organically formed neighbourhood with in-purchasing and trading of rooms and space, possibly over multiple generations of inhabitants. The question of second storeys, as in most cases, remains open.⁴⁴ Domestic quarters seemed to dominate the upper town — perhaps with the ‘bakery’ as part of House G at what was likely to have been the entrance to the tell. The contemporary textual evidence discussed above

⁴⁰ For a discussion of *halzuhu*, see Finkelstein 1953, p. 116, n. 30. This term was also employed at Nuzi, and the equation of *hasilbu* would make sense with the recent scholarship arguing that Middle Assyrian administration strategies borrowed heavily from previous Mitanni examples.

⁴¹ Finkelstein 1953, p. 120.

⁴² Stone 1996, pp. 229–234.

⁴³ See Salvin 2017, pp. 307–310 for further discussion.

⁴⁴ See Stone 1996, p. 231 for further discussion.

reveals that this area may have contained the living quarters of the local governing family, demonstrating the neighbourhood's likely elite or upper-class nature. As the part of the mound oriented toward the Assyrian heartland, this elite presence makes spatial sense.⁴⁵ While artefact contexts were lacking from the preserved excavation records, the assemblage generally indicates a range of normal household activities, such as food preparation and storage, small craft production such as weaving and possibly leatherworking, and domestic religion practices. The only notable activity observed is a heightened emphasis on administrative practice, seen in the presence of a number of sealing implements, especially in Squares W6 and W7 (Houses B, D, and E). The artefacts within the burials betray nothing out of the ordinary, but provide evidence for a generally unified set of material culture regarding mortuary practices. The biggest exception to this unity is the presence of multiple burial *types* in the town, even within the same house structures. As discussed above, this may be an indication of adoption or enslavement practices bringing varying mortuary practices into the household.

In essence, the 'household structure' of Tell Billa seems similar to those seen at Hurrian-period Nuzi and Middle Assyrian Aššur: varied in size, but with an emphasis on the extended family and its additional members over a more compact nuclear model.⁴⁶ Like Aššur and Nuzi, the central courtyard model seems to be the rule, with other rooms surrounding them. This structural type is usually associated with extended households. The textual evidence in the form of Sin-apla-ēriš's documents illustrates a typical patriarchal household structure.⁴⁷ The varied burial practices found within the homes — best illustrated in Complex E, but also seen in others — seems to indicate a variation in mortuary practices even among members of the same household. I proposed that this is likely evidence for different identity groups living within the same structures — possibly slaves, or adoptees.⁴⁸ As Dosch lists, possible members within a single household include the patriarch, the patriarch's wife, children, grandchildren, older relatives, and siblings, slaves, adoptees, debtors, *tittenmu*-pledges, and "partners".⁴⁹ We also should not ignore the possibility that multiple houses in this corner of the mound might be part of the same household, for example House Complex B, where B1 and B2 were once separate dwellings, later combined to form one. The exchange of room 34 between Houses B and C likewise might indicate a household-type relationship between the inhabitants of both dwellings.

Conclusions

So, what then does this information reveal to us about Late Bronze Age households? The houses on the mound of Tell Billa were fairly extensive domestic modules with expanding dynamics, but little room to expand — similar to contemporary Aššur. This area specifically can be assumed to be the residences of mid-to-high elites, based on the cuneiform tablets recovered from House C and the average wealth of burial contexts. Furthermore, the remarkable case of House Complex E

⁴⁵ See also Creamer 2021b.

⁴⁶ Miglus 1996a; Miglus 1996b; Starr 1939; Novák 1999.

⁴⁷ Finkelstein 1953.

⁴⁸ This extended familial structure is illustrated most notably in archives from Nuzi and Aššur. See Paradise 1972 and Pedersén 1986 respectively.

⁴⁹ Dosch 1996, p. 306.

illustrates the extent to which we must reconsider typical models of Mesopotamian ‘domesticity’ at this time: as fluid and dynamic rather than largely rigid and predicated upon notions of related members with similar beliefs and practices. Instead, the household seemed to function as an inclusive group of many different members who formed a cohesive social and economic unit.

At Tell Billa, we see a snapshot of a densely urbanised citadel lasting from the end of the second millennium and into the first. For now, it remains impossible to compare this to the occupation of the northern part of the mound, as the excavation records for those Areas remain lost. In lieu of such data, however, I propose that this use of citadel space indicates a closely knit settlement on the mound of Tell Billa — likely continuing from even earlier occupation phases to form a neighbourhood the likes of which is also seen at Aššur and Nuzi. The ‘household’ at Late Bronze Age Tell Billa, at least in the information provided by Area VII, adheres to an ‘extended family’ model of cohabitation. Overall, we can characterise the Late Bronze Age town of Tell Billa’s southwestern citadel as a neighbourhood of extended households, with several likely serving as upper-class residences integrated into the settlement via their administrative duties. This is not much different from similar models proposed for Middle Bronze Age towns, indicating that at the end of the second millennium, despite the shifts from territorial kingdoms to imperial entities, the fundamental entity of organisation — the household — remains stable.⁵⁰ It is my hope that both this reanalysis of Tell Billa’s excavation data and the presentation of how it fits within a model Late Bronze Age settlement structure can continue the conversation encircling domestic organisation, especially in the midst of the transition to imperial rule.

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Robbery, veneration and destruction — on the reuse of Early Bronze Age tombs in Syria

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Abstract

*Reuse manifests itself in the archaeological record in many different forms, including the displacement or absence of (parts of) skeletons and grave goods, the addition of human bodies and objects and the destruction of the built environment of the tomb. This paper investigates the archaeological evidence for reuse at Early Bronze Age tombs in Syria, specifically, the resumption of activities after a period of interruption. By re-examining data from 1014 tombs, it will be demonstrated that such activities, albeit encountered rarely in the archaeological record, are unlikely to be explained by grave robbery for most of the occurrences. It will be further argued that while later activities at elite tombs might be explained by acts of ancestor veneration or destruction of mnemonic reference of the (formerly) ruling powers, such explanations do not easily work for non-elite tombs, and thus alternative interpretations are needed.**

1. Introduction

Early Bronze Age (c. 3000–2000 BC) tombs in Syria have been intensively researched by archaeologists for decades. Special attention has been paid to chronology, typology and complex burial rites, which provide valuable insights into the organisation of society at large, foremost on social status and identity.¹ This article will focus on a different aspect of Early Bronze Age tombs that has received less attention in the past: reuse. Reuse as I understand it clearly differs from continuous use, which includes examples such as carrying out commemorative rituals or the interment of deceased members of one group over a long period of time in collective tombs.² Continuous use and commemorative rituals that took place after a person's death are widely attested in the whole of the Near East across all time periods.³ Reuse, on the other hand, is discontinuous and characterised by an interruption in use, which can assume the form of very different types of activities. Such activities in tombs are often dismissed by archaeologists as disturbances to the part of the

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¹ For example, Bolt and Green 2003; Bouso 2015; Laneri 2007; Meyer and Hempelmann 2013, pp. 174–176; Orthmann 1980; Porter 2000; 2002b; Schwartz 1986; 2007; Steimer-Herbet 2004; Valentini 2011; Felli 2016; Bradbury and Scarre 2017.

² Kümmel 2009, p. 57; Thäte 2007, p. 8.

³ For example, Pfälzner *et al.* 2012; Tsukimoto 1985.

archaeological record that is of interest to them, which is usually the primary use of the tomb. In such cases where these activities appear in a destructive form, they are often generalised as grave robbery. In archaeology, indication of grave robbery is often believed to be present when parts of the skeleton have been moved, grave goods are disarrayed, or a subsequent entrance to the tomb is visible. The term ‘grave robbery’, however, implies an unauthorised action that is directed to obtain valuable objects, such as jewellery or metal, from a tomb in order to profit financially. In recent years, publications of this phenomenon from other parts of the world, mainly from the Americas and Europe,⁴ but also from Syria itself,⁵ prove that such general and simple explanations for later activities at tombs are not a sufficient presentation of the complex reality of the past. They demonstrated the presence of diverse ritual activities that took place after the original burial that were clearly not driven by illicit economic gain. Therefore, other explanations must be sought. Within this article an overview of secondary activities that took place at Early Bronze Age tombs in Syria will be presented. Though the amount of available data is limited due to factors such as the looting of tombs in modern times, taphonomic processes and the lack of comprehensive publications, this study attempts to identify cases of reuse as a discontinuous activity at a tomb. The distribution of the types of tombs that were reused, in which geographical regions such reuse took place and the forms nature of reuse attested will also be analysed. Through this, the question of possible motivations behind reuse will be approached.

In order to differentiate the various types of tombs, a simplified version of the tomb typology developed by Carter and Parker⁶ and modified by Porter⁷ and Cooper⁸ will be followed in this article. The first category that is differentiated within this typology are simple pits that are dug into the ground. These can either be covered by earth or by stone slabs. Usually, these types of tombs only contain one burial in a flexed position. The second category is cist graves.⁹ They are distinguished from pit burials by walls built of stone or mud-bricks and usually roofed with stone slabs or mud-bricks. Just like the simple pits, they are usually used for single inhumations. The third category is shaft-and-chamber tombs. These can be cut into the earth or bedrock or built above ground. They contain a shaft that leads into one or more subterranean chamber(s), a feature not found in pit and cists tombs. Shaft-and-chamber tombs were intended for multiple burials. The fourth category is dolmens or mounds, which represent above-ground tombs that are commonly made of piled up stone walls and a roof of larger stone slabs. They can incorporate (semi-)subterranean pits. The fifth, and final, category is burials in ceramic containers, which include — in this article — *pithoi*, sherd burials, clay sarcophagi, as well as any other form of pottery container. They are often, but not always, used for child and infant burials.

⁴ For example, Chase and Chase 2011; Klevnäs 2011; Kümmel 2009; Thäte 2007; van Haperen 2010.

⁵ Peltenburg 2015; Porter 2002a; Schwartz 2013.

⁶ Carter and Parker 1995, pp. 104–108.

⁷ Porter 2002b, p. 13, table. 2.

⁸ Cooper 2006, pp. 206–239.

⁹ This category also includes those called ‘stone chamber tombs’ and ‘gallery graves’ in other publications.

2. The archaeological evidence

According to Aspöck,¹⁰ secondary activities at tombs can range from little changes in inventory to complete emptying of the space. For the archaeologist, identifying such activities is challenging because one form of action can result in very different archaeological records. Likewise, it is possible that very different motivations can lead to the same visible changes in the archaeological material. Natural, non-anthropogenic influences such as the decomposition of the body, animal burrows, or the collapse of the tomb structure, can generate disturbances within the tomb and are often difficult to differentiate from anthropogenic ones.¹¹ In addition, not all anthropogenic influences have to be intentional. The distinction between continuous use (for example, commemorative activities) and discontinuous reuse present unclear chronological sequences that pose a real obstacle.

In the following paragraph, indications of (possible) secondary use at Early Bronze Age tombs in Syria will be presented. In total, 1014 published tombs from 49 different sites have been considered for this study (Fig. 1). This data set includes all published Early Bronze Age tombs known to the author from sites within the boundaries of the modern nation-state of Syria. Only 86 of them featured any indication of later activities. However, one has to account for a large estimated number of unreported cases, such as single objects of later periods encountered in an Early Bronze Age tomb neglected in excavation reports because they were dismissed as intrusive. In addition, modern grave robbery makes it often impossible for the archaeologist to differentiate between primary continuous use and reuse in a heavily disturbed context. Those tombs with indications of reuse are frequently not dated, thus considerably hindering the informative value of the report.

One indicator of later activities at Early Bronze Age tombs in Syria are tombs where the skeleton, or parts of it, are missing. Empty cist tombs without human remains were, for instance, encountered at Carchemish KCG 3,¹² Tell Brak Area FS Level 2,¹³ Melebiya Tomb 2494,¹⁴ Tell 'Atij Tomb ATJ86.D13A3,¹⁵ Tell Banat Tomb 9,¹⁶ Mari Tomb 300 and Tomb 0477,¹⁷ as well as Ebla Hypogeum G4.¹⁸ At Tell Gernayir, Max Mallowan excavated what he identified as the 'possible [...] remains of a plundered pot burial'.¹⁹ No skeleton was found, but there were broken fragments of a large unpainted jar associated with a terracotta figurine, additional pottery and a faience amulet. Some Early Bronze Age burials in Syria have only specific parts of the skeleton missing or remaining. For instance, the report of Burial 4 at Tell Rifa'at noted only the skull remaining of a skeleton associated with a broken pot,²⁰ while at Jerablus Tahtani Tomb T781 only the skull was taken out.²¹

¹⁰ Aspöck 2003, p. 230.

¹¹ Baitinger 1992, p. 336.

¹² Woolley 1952, p. 220.

¹³ Oates *et al.* 2001, pp. 66–67.

¹⁴ Lebeau 1993, p. 232.

¹⁵ Fortin 1988, p. 147.

¹⁶ Porter 2002b, pp. 19–21.

¹⁷ Rouault and Mora 2009; Jean-Mari 1999, p. 147.

¹⁸ Matthiae 2013; Laneri 2016, pp. 56–59.

¹⁹ Mallowan 1937, p. 125.

²⁰ Matthers 1981, p. 328.

²¹ Peltenburg 2015, p. 233.

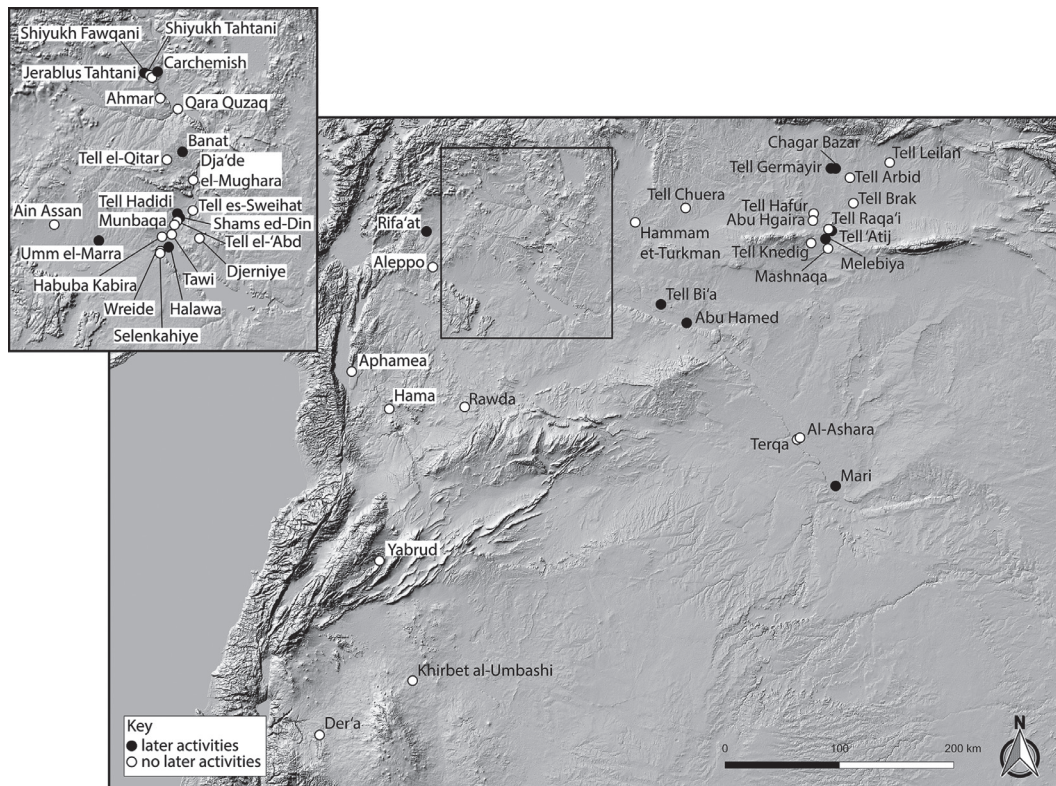


Fig. 1. Sites with tombs studied for this paper.

Tombs U25, as well as Q26 Tomb XVI, at Selenkahiya yielded only incomplete skeletons in odd arrangements.²² Tomb 24/49:7, also located in Area E, is a small shaft-and-chamber tomb. Here, the head and upper parts of the skeleton were missing along with adornments and other grave goods that were normally placed in its proximity.²³ The skeleton found in Tomb 1026 at Mari had its feet missing.²⁴ Clearly, these tombs were entered at a later stage in time and parts of the skeletons were removed or displaced.

The absence and dislocation of human remains often goes along with the displacement of grave goods and their (partial) absence, which is another indicator for later reuse. At Umm el-Marra, most of the tombs had signs that they were disturbed in antiquity.²⁵ The contents seem to have been removed or damaged. Tomb 3 and Tomb 5 had only pottery grave goods, along with human and animal remains, which had been scattered throughout the tomb.²⁶ Eighteen clay sarcophagi and other ceramic containers²⁷ at Mari were found largely empty, with the exception of scattered

²² van Loon and Meijer 2001, pp. 205, 209, 220.

²³ Strommenger and Kohlmeyer 1998, p. 36.

²⁴ Jean-Marie 1999, p. 187.

²⁵ Schwartz 2013, p. 507.

²⁶ Schwartz 2012, p. 63; Schwartz *et al.* 2006, p. 606.

²⁷ Tombs 50, 54, 59, 529, 685, 687, 692, 709, 719, 782, 788, 939, 945, 947, 956, 1022, 1026 and 1032.

and disturbed human bones, some pottery jars and fragments of other grave goods.²⁸ Furthermore, the mud-brick cist Tombs 42 and 755 at the same site yielded very few, if any, grave goods and human remains.²⁹ In Area M of Tell Abu Ḥamad, which is part of a larger Early Bronze Age necropolis that has been heavily looted in modern times, Tomb M1 was constructed as an above ground rectangular stone structure.³⁰ A few human bones and pottery sherds as well as a single bead were the only finds in its vicinity. Further tombs that are labelled as disturbed in antiquity in the excavation reports can be found at Tell Brak in the chapel of Area C.H.,³¹ Tell 'Atij on the so-called *tell secondaire*,³² Jerablus Tahtani T1369,³³ Abu Ḥamad Tombs Z2 and J10,³⁴ Tell Banat Tomb 4 and Tomb 6,³⁵ Shams ed-Din Tombs 22, 24, 27 and 29,³⁶ and Tell Bi'a Tombs U:23 and U:30.³⁷

While some tombs indicate missing grave goods, other tombs clearly feature objects added well after the original burial. At Selenkahiye, the shaft of the shaft-and-chamber Tomb P+Q (R 26 Tomb 1+2) was filled in its lower part with carefully placed mudbrick, while the upper part of the fill was comprised of bricks and brick fragments at various angles. Two bronze fragments, apparently pin heads and a cup were found in the upper fill.³⁸ The shaft-and-chamber Tomb W13 at the same site features a great number of grave goods scattered on the floor of the burial chamber. Possibly that happened when, at a later point in time, additional offerings were placed on a higher level in the back of the chamber, though it is not clear if these objects — mainly pottery jars and jewellery — were, in fact, put in later. It is therefore almost impossible to differentiate in these cases between reuse and continuous use. The added objects cannot chronologically be assigned to a later phase than that of the original use of the grave and thus an interruption in use that would be an indicator for reuse is not clearly evident.

Some of the tombs where (parts of) the skeleton or grave goods are missing also feature evidence for alterations to the tomb structure. For instance, a secondary shaft gives access to the tomb in Area FS Level 2 at Tell Brak. According to the excavators, who interpret the shaft as a robbery entrance, 'it seems likely that the robbery took place when the building was temporarily deserted after the fire, since quantities of ash were found in the upper fill of the shaft.'³⁹ In addition to the ash, 14 sealings were recovered from the fill. Other objects that the excavators identify as probably discarded grave goods include a cylinder seal and two copper or bronze objects. Other indications of later access to tombs can be found at various sites. The cist tomb KCG 3 at Carchemish had some covering-stones missing,⁴⁰ the door slab was out of its position at the shaft-and-chamber Tomb Z2 at Abu Ḥamad,⁴¹

²⁸ Jean-Marie 1999, pp. 112–114, 151, 163–165, 170–171, 182–184, 186–187.

²⁹ Jean-Marie 1999, pp. 112–113, 168.

³⁰ Al-Khalaf and Meyer 1993–1994, pp. 197–198.

³¹ Mallowan 1947, p. 70.

³² Fortin 1990, p. 247.

³³ Peltenburg *et al.* 2015, p. 75.

³⁴ Krasnik 2005, pp. 37, 42, 57–58.

³⁵ Porter 2002b, p. 17; McClellan and Porter 1999, p. 109.

³⁶ Meyer 1991, pp. 47–48.

³⁷ Strommenger and Kohlmeyer 1998, pp. 93, 97.

³⁸ van Loon and Meijer 2001, p. 166.

³⁹ Oates *et al.* 2001, p. 66.

⁴⁰ Woolley 1952, p. 220.

⁴¹ Krasnik 2005, pp. 57–58.

and the covering slabs of the shaft-and-chamber Tomb 7 at Tell Banat were removed.⁴² In the case of Mari Tomb 709, the sarcophagus was badly damaged,⁴³ the stone ceiling of Tomb 300 showed large holes,⁴⁴ and the gypsum slabs covering Tomb 755 had been removed leaving only two in place.⁴⁵ At Tell Bi'a, six above-ground mud-brick tombs (Grabbaue 1 to 6), were found that were assigned by the excavators to the third millennium BC rulers of the site.⁴⁶ All of them were allegedly robbed in antiquity before Palace B was built on top of them. The archaeological remains demonstrate that at the time of the alleged robbing, the roofs of the tombs were still intact.⁴⁷ According to the excavators, clear evidence of illicit entry to the tombs is visible in the eastern wall of Room 1 in Tomb 3 and in the western wall of Room 1 in Tomb 4. There is also evidence for the careful closure of the secondary entrances. Tomb 50 at Mari was carefully re-covered by two gypsum slabs after its content was taken out,⁴⁸ and Tomb 755 was closed again with a mat covered in bitumen.⁴⁹ A special feature is present at the hypogeum Tomb 928, located below the Throne Room XVI in the so-called *Palais Oriental* at Mari. In the centre of the chamber of this mud-brick shaft-and-chamber tomb, a shaft of unknown purpose was discovered, sunk more than 4 m beneath the floor.⁵⁰ In summary, given the careful closure of some of those secondary entrances, it is highly unlikely that they are the result of grave robbery as often assumed by the excavators. Rather, they hint towards different motivations for secondary activities, which are discussed below.

Besides the removal of skeletons and grave goods in burials, the breaking of grave goods is another form of later activities at Early Bronze Age tombs in Syria. The Early Bronze Age burial custom practised at Shams ed-Din included grave goods being intentionally destroyed and smashed into small pieces.⁵¹ For example at Tomb 6, evidence for such disturbance in antiquity is clearly visible. Here, the closing stone is missing and pottery vessels have been intentionally smashed.⁵² In shaft-and-chamber Tomb 51 at the same site, only a few pottery fragments were found, which all show traces of intentional destruction. The excavators assume that the tomb, like all other disturbed tombs at Shams ed-Din, was entered by force in antiquity, most likely directly after the burial or at a point in time when the location of the tomb was still known and the shafts not yet filled.⁵³ Indications for this are, according to the excavators, the massive sedimentations as well as the large number of cobble stones directly above the tomb's floor. Meyer, however, also points out that the smashing of human bones is only possible after the decomposition of the body, which might take several years. Other tombs with evidence of the ritual smashing or destruction of grave goods and human bones at Shams ed-Din are Tombs 1, 5, 10, 33, 60, 73, 88 and 93.⁵⁴ He sees both ritual

⁴² McClellan and Porter 1999, p. 109.

⁴³ Jean-Marie 1999, p. 165.

⁴⁴ Parrot 1938, pp. 4–8.

⁴⁵ Jean-Marie 1999, p. 168.

⁴⁶ Strommenger and Kohlmeyer 2000, pp. 8–13.

⁴⁷ Strommenger and Kohlmeyer 2000, p. 8.

⁴⁸ Jean-Marie 1999, p. 113.

⁴⁹ Jean-Marie 1999, p. 168.

⁵⁰ Margueron 1983, pp. 13, 34, pl. Vb; 1990, pp. 404, 414–416; 2014, pp. 123–124.

⁵¹ Meyer 1991, p. 21.

⁵² Meyer 1991, p. 33.

⁵³ Meyer 1991, pp. 67, 159–160.

⁵⁴ Meyer 1991, pp. 159–160.

practices as well as robbery as possible explanations for this phenomenon. Such phenomenon is not limited to Shams ed-Din. For example, at Umm el-Marra, Tomb 3 evidences the disturbance of human bones after their decomposition.⁵⁵ Another form of destruction is visible at Tomb 9 at Umm el-Marra. Here, many stone boulders had been tossed onto the floor mixing up the human remains.⁵⁶

Jerablus Tahtani's monumental Tomb 302 provides extensive diachronic evidence for different types of later activities at Early Bronze Age tombs. From the inventory of the original burials in Tomb 302, only very small pieces of metal objects and other precious items remained. Since such small items can be easily overlooked, it seems that the grave goods were intentionally taken out. As it is an architecturally elaborate tomb, it is unlikely that the original burial only contained few grave goods. According to Peltenburg, the tomb was entered through the partly blocked entrance, followed by removal of stones from the roof. After the removal of the grave goods, the tomb collapsed and material was deposited inside. As this material was sealed by stratified deposits, the intrusion can be dated within 150 to 200 years of the first use of the tomb.⁵⁷ After the tomb became a ruin, people dumped refuse in the hollow of the main chamber, including used ground-stone tools.⁵⁸ At an even later point in time, 284 objects were carefully deposited within the tomb's ruins.⁵⁹ This demonstrates a tremendous shift in the perception of the tomb over time — first as venerated burial place, then as an unappreciated rubbish pit and then again as carefully treated site.

Rarely, later burials are encountered in older tombs. Among the tombs examined for this study, such an activity was only encountered at Tell Hadidi. Tomb D at Tell Hadidi is an impressive 15 m long stone-built shaft-and-chamber tomb. There is evidence that this tomb had been reused for interments in the Late Bronze Age 'when much of its original contents were removed or thrown away'.⁶⁰ Tomb L I had been, according to Dornemann, subjected to extensive plundering. Only broken pottery, fragmentary metal objects and hundreds of beads 'were left behind by the tomb robbers'.⁶¹ For Tomb L II, the excavator Dornemann initially dated it to the Late Bronze Age and refers to ancient and modern tomb robbing;⁶² however, Cooper speculates that it might also be an Early Bronze Age tomb, which was reused in the Late Bronze Age.⁶³ Another interesting situation presents itself at tomb 24/49:3 in Area E of Tell Bi'a. In an ash pit above the chamber of the small shaft-and-chamber tomb, the remains of a 9–11 year old girl, labelled tomb 24/49:1, were found.⁶⁴ According to the excavators, the individual might have been thrown head first into the pit. Thus, the addition of human remains also contributed different practices that deviated from the standard burial customs in Syria.

⁵⁵ Schwartz *et al.* 2006, p. 610.

⁵⁶ Schwartz 2012, p. 64.

⁵⁷ Peltenburg 2015, pp. 246–247.

⁵⁸ Peltenburg 2015, p. 248.

⁵⁹ Peltenburg 2015, p. 248.

⁶⁰ Cooper 2006, p. 225; Dornemann 1977, p. 118.

⁶¹ Dornemann 1980, p. 227.

⁶² Dornemann 1977, p. 147; 1980, p. 226.

⁶³ Cooper 2006, pp. 226–227.

⁶⁴ Strommenger and Kohlmeyer 1998, p. 32.

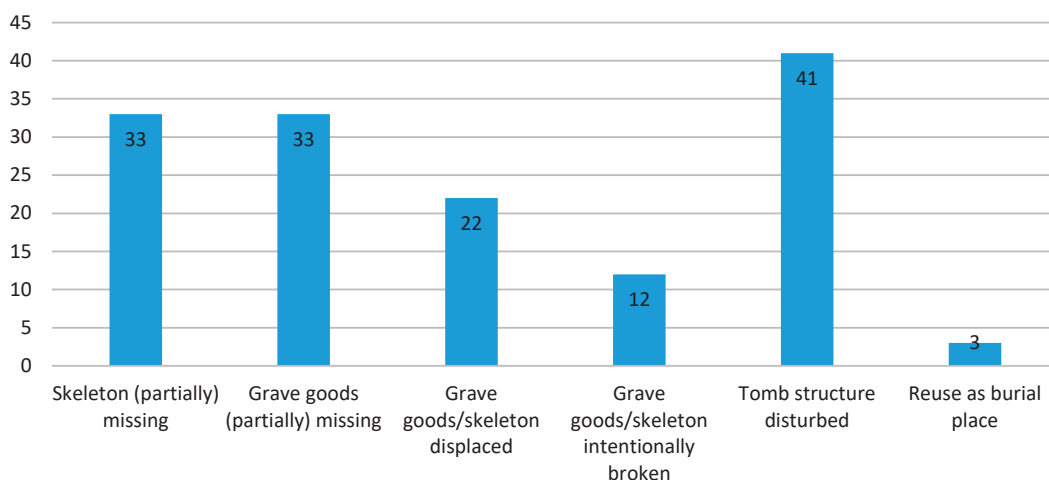


Fig. 2. Signs of later activities at the tombs in absolute numbers. The total number of tombs in this diagram is greater than the total (86) that showed signs of later activities; this is due to evidence of more than one disturbance at some tombs.

3. Patterns of reuse

The vast majority (91.5 per cent) of the 1014 tombs analysed for this paper do not show any signs of later activities that are not clearly connected with burial rites thus demonstrating that reuse is a rather rare phenomenon. Although one has to account for a certain number of unidentified cases due to various reasons, later activities at tombs clearly did not play a prominent role for Early Bronze Age tombs in Syria. Among the tombs with signs of later activities, a great variety is attested. In 33 cases, the skeleton is (partially) missing and in another 33 cases, the grave goods (Fig. 2). Twenty-two tombs have the grave goods and/or skeleton displaced. Indications for intentional breaking of grave goods or human remains can be found at 12 tombs in Early Bronze Age Syria, especially at Shams ed-Din,⁶⁵ and 41 tombs feature evidence for damage to the built structure of the tomb. Only in three cases, the tombs were reused for a burial. These are Tombs D, L I and L II of Tell Hadidi.

Across different types of tombs, the highest percentage of later activities (34.5 per cent) is present amongst above-ground tombs. Again, however, it has to be pointed out that the above-ground tombs only represent less than three per cent of all tombs investigated in this paper. Therefore, this number represents a very small portion of the sample studied. Among tomb types with a more robust data set, indications of later activities have been found at 10.6 per cent of ceramic container burials, 9.9 per cent of shaft-and-chamber tombs, 12.1 per cent of cist tombs and 1.9 per cent of the pit tombs (Fig. 3). The reason behind this distribution can be attributed to the varying degrees of visibility and accessibility of the tombs. Pit tombs, which represent the lowest numbers of signs for reuse, are barely visible on the surface after the deposition has taken place and feature no built environment that could facilitate later access. Cist and shaft-and-chamber tombs, on the contrary,

⁶⁵ Meyer 1991, p. 21.

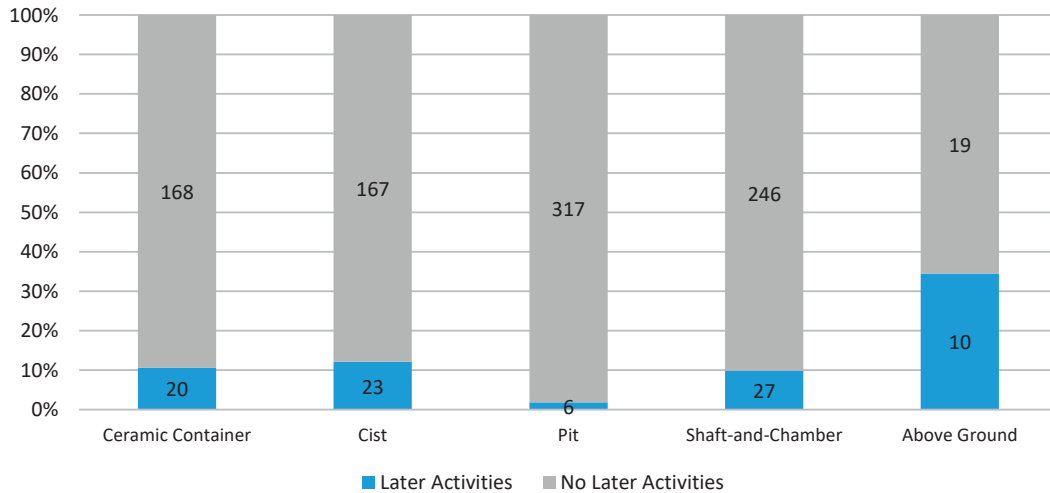


Fig. 3. Later activities at the tombs according to their type.

have such built structures that can facilitate a secondary entrance,⁶⁶ even if the original entrance is blocked or was not used. As long as the tomb chambers are intact, they provide a space for various actions. These tombs might not have been highly visible on the surface. In this regard, they distinguish themselves from above ground tombs. The fact that ceramic containers feature just as frequently as cists and shaft-and-chamber tombs in later activities needs further investigation: they were deposited in simple pits and are likewise neither very visible nor well accessible. In Mari, however, where the majority of the reused ceramic containers come from, they were, to a large degree, placed in a built space⁶⁷ and thus provided the same accessibility and built environment for activities as cist tombs.

Concerning the geographical distribution of tombs with indications of later activities, no pattern can be seen (Fig. 1). Sites demonstrating reuse directly neighbour sites without and are distributed all over the research area and also between sites, and the number of tombs with evidence of later activities compared to those without varies considerably. Chronological patterns cannot be established as the dating of the later activities at the excavated tombs is not fine-tuned enough to work out chronological groups within the dataset. The question why specific tombs were targeted for reuse will be discussed below.

4. Discussion: Robbery, veneration and destruction

From what can be derived from the archaeological record, reuse of Early Bronze Age tombs in Syria was rare. In most instances where tombs were disturbed, past activities cannot be clearly reconstructed. In most cases also, activities cannot not clearly to be differentiated from continuous

⁶⁶ See also Peltenburg 2016, pp. 136–139.

⁶⁷ Jean-Mari 1999, p. 13.

use in the form of commemorative rituals, as chronology is often difficult. Despite these challenges, three lines of interpretation for later activities at the tombs will be discussed: 1) grave robbery, 2) veneration of the ancestors including commemorative rituals and 3) destruction for social and/or political purposes. Of course, it cannot be assumed that there is only one interpretation that fits all cases.

Most evidence for reuse is visible in the archaeological record by the destruction or absence of objects from tombs. Additional evidence of reuse includes the appearance of grave goods in an unordered fashion or the presence of a secondary access to the tombs. All four indicators have often been interpreted as robbery.⁶⁸ As stated in the introduction, grave robbery, in this article, is understood as intentional and illicit removal of valuable objects from tombs for economic benefit. For example, metal objects are often thought to be of high value and therefore of targeted interest for grave robbers.⁶⁹ In Early Bronze Age Syria, however, the selection of what was taken from a tomb does not seem to have been made on the basis of raw materials. Oftentimes, human remains, which clearly have no currently known economic value, have been partially or completely removed from the allegedly looted tombs. Furthermore, at many tombs pottery vessels, the most common grave good of the Early Bronze Age in Syria, are missing, which seems an odd choice as loot given their abundance. It is doubtful whether such common pottery jars, as found in the tombs, were highly prized. In other instances, artefacts made of valuable raw material were left behind. For example, at Mari Tomb 300,⁷⁰ where amongst others several bronze objects as well as jewellery made of gold, silver and lapis lazuli was not taken. Some scholars argue that taboos or superstitions might have required leaving certain artefacts behind.⁷¹ If this is the case, there should always be the same types of grave goods left behind. This is not the case in Early Bronze Age Syria. Grave goods in tombs with evidence for later activities range from the still richly equipped — like Mari Tomb 300 containing several pottery vessels and personal adornments — to the complete absence of grave goods, like Melebiya Tomb 2494. Another argument in instances where a tomb has not completely been plundered and valuable objects have been left behind, is that the robbers were in a hurry and had to work in the dark to avoid getting caught and, therefore, could not take all objects with them.⁷² This might be an explanation for individual cases, but still does not explain why non-valuable objects were predominantly taken. Additionally, efficient grave robbing should target those tombs that are more richly equipped.⁷³ This is again not to be seen in Early Bronze Age Syria. Tomb disturbance is attested for many of the largest and, presumably, formerly richest outfitted tombs that therefore might be assumed to have belonged to the elites, for example, Jerablus Tahtani Tomb 302, Umm el-Marra Tomb 9, the mausoleums of Tell Bia, Mari Tomb 928 and Tomb 1 at Shams ed-Din. However, tomb disturbances occurs more frequently at smaller tombs such as cist tombs, pit burials and ceramic container burials (Fig. 3). Thus, secondary activities in Early Bronze Age Syria do not predominantly target the elites and richly equipped tombs. The careful closure of the secondary entrance to tombs, such as Mari Tomb 928 and 1022,⁷⁴ can

⁶⁸ For example, Parrot 1938, pp. 4–8; Woolley 1952, p. 220; Margueron 2014, pp. 123–124; Jean-Marie 1999, p. 168.

⁶⁹ Kümmel *et al.* 2008, p. 43.

⁷⁰ Parrot 1938, pp. 4–8.

⁷¹ Bofinger and Przerzyslaw 2008, p. 57; Klevnäs 2011, p. 143; Roth 1978, p. 73.

⁷² Raddatz 1978, p. 49; van Haperen 2010, p. 5.

⁷³ Baitinger 1992, p. 335; Driehaus 1978, p. 19; but see Müller 1976, pp. 121–125.

⁷⁴ Jean-Mari 1999, pp. 168, 186.

be another argument against grave robbers as it is improbable that grave robbers would take the time for such measures. However, the closure could also have been a repair to the tomb by people not involved in the later disturbance activity but who cared for the tomb and the people buried there. Conversely, at Umm el-Marra, the careful blocking of the entrance of the disturbed tombs 3 and 5 is interpreted by Schwarz *et al.*⁷⁵ as provision against further offerings to the people interred within the tomb and thus as an act of resistance against the people buried within. Single objects belonging to an earlier period than the first use of a tomb or objects placed at levels above the original burial are also sometimes interpreted as objects lost by grave robbers.⁷⁶ For instance, a bronze axe found at Tomb Z2 at Abu Ḥamad has been interpreted as a tool of ancient grave robbers that they lost during their clandestine activities.⁷⁷ Otherwise, it is unlikely that such a valuable object would have been left behind. Most objects added during a later period to the Early Bronze Age tombs in this study cannot be associated with tools for grave robbery. They include bronze fragments and cylinder seals.⁷⁸ In summary, explanations other than ancient grave robbery have to be sought to explain the secondary activities at Early Bronze Age tombs in Syria.

Veneration of ancestors, which can be expressed through commemorative rituals, is a possible explanation for later activities at tombs. In the archaeological record, they could result in (partially) missing skeletons, if incorporated into secondary burials.⁷⁹ This would be necessary if death is seen not as final but transitional, thus, requiring various ritual activities along the way.⁸⁰ Secondary burials that involve a specific selection of human bone to be placed elsewhere occurred during the Early Bronze Age in Syria.⁸¹ At Tomb 1 at Tell Banat, bones from several body parts were found together in one pot, which has been interpreted as collection for transport.⁸² Thus, empty graves as found at Tell Brak, Melebiya, Tell 'Atij, Mari, Carchemish and Tell Germayir, amongst others, might indicate a later reburial of human remains at another place in a multi-stage burial process.⁸³ Evidence for this could be when a grave structure shows signs of being reopened or when skeletons in secondary positions are found at other places. Tombs with missing skeletons in Early Bronze Age Syria often have evidence for secondary access. In two cases, this secondary access has been carefully closed again. Some of them have grave goods present, others do not. Secondary burial locations have not been identified for any of these tombs. Further activities in the burial process at Tell Banat involved the disarticulation, selection and burning of skeletal remains. According to the excavator, the rearrangement of bones of individuals into collective groups merges the individual ego into the ancestral group.⁸⁴ The incomplete and fragmentary state of the human remains from Jerablus Tahtani are interpreted in a similar way.⁸⁵

However, from the analysed data it is clear that at most tombs the skeletons remained in their original position. Therefore, one has to question that if the missing skeletons are really an indicator

⁷⁵ Schwarz *et al.* 2006, p. 633.

⁷⁶ Bofinger and Przerzyslaw 2008, p. 57.

⁷⁷ Krasnik 2005, p. 58.

⁷⁸ Oates, Oates and McDonald 2001, pp. 66–67; van Loon and Meijer 2001, pp. 166–177.

⁷⁹ For example, van Loon and Meijer 2001, p. 205.

⁸⁰ Felli 2012, p. 97.

⁸¹ Felli 2012; Peltenburg 2016, pp. 135–136.

⁸² Porter 1995, p. 5.

⁸³ Cooper 2006, p. 211; Porter 2002a, p. 165; 2002b, p. 21.

⁸⁴ Porter 2002a, p. 22.

⁸⁵ Bolger 2008, p. 224; but see Peltenburg 2015, pp. 247–248.

for secondary burials, why it only occurred at some tombs? If one assumes that high-status individuals were determined to enter the realm of important ancestors on behalf of the local community, this should be reflected in the tombs. Thus, the (partial) missing of skeletons should be evident at the largest, richest, or most prominently located tombs. This is not the case in Early Bronze Age Syria. Only five tombs with (partially) missing skeletons are above ground or shaft-and-chamber tombs, while the large majority can be allotted to cist tombs, ceramic containers and even simple pits. Therefore, it is not to be ruled out that the empty tombs were cenotaphs,⁸⁶ which were either built for the memory of the deceased with the actual remains buried elsewhere, or constructed as tombs but could not, for whatever reasons, serve their intended purpose.⁸⁷ This would fit much better with the pattern that only few tombs have the skeleton missing. It does however not explain, why many tombs feature evidence of a secondary entrance as this would not be needed for cenotaphs.

Another possible form of ancestor veneration can be seen in tombs where only single objects of the same period as the contents of the tomb were found outside the tomb.⁸⁸ The same is true for objects brought into the tomb after the original burial.⁸⁹ In both cases, secondary burials and offerings, one has to point out that this processes belong to prolonged funerary rituals, thus not reuse in the true sense of the word.

Veneration in form of reuse can be seen when a considerable time span elapsed between the original use and later activities. This is the case in Early Bronze Age Tombs D, L I and L II at Tell Hadidi during the Late Bronze Age, which were reused as burial spaces. There are practical reasons for tomb reuse — a pre-existing tomb is ready to use and requires considerably less effort than creating a new one. However, most scholars see such acts of reuse as associated with expressions of legitimising social order or territory by reinventing the monument and creating links to ancient beings or perceived ancestral features from a distant, mythic past.⁹⁰ The burials inside abandoned buildings at Tell Barri and Kashkashok III are accordingly interpreted as being placed there in order to ‘keep alive a collective memory in which the dead fulfilled the role of maintaining ties between the living and their predecessors.’⁹¹

A different motivation that would also require the (partial) removal of human remains from tombs together with the displacement and/or taking of grave goods and alterations to the built structure of the tomb is visible in the archeological record in form of intentional destruction. For

⁸⁶ Krasnik 2005, p. 48.

⁸⁷ Lebeau 1993, p. 232.

⁸⁸ Bouso 2015, p. 395; Peltenburg 2015, p. 250. For example at Tombs 3 and 4 at Umm el-Marra vessels, bone comb fragments, a bronze chisel and a silver bowl were found in the soil above the tombs floor (Schwartz 2012, p. 66); at Tell Halawa Tomb H70, an equid was inserted in the fill over the skeletons (Orthmann 1981, pp. 54, 101); at Tell Selenkahiye Tomb W13, three limestone figurines were found some 1.20 m above the skeletons (van Loon and Meijer 2001, pp. 210–213); at Wreide Tomb 6 and Tomb 86 (Orthmann and Rova 1991, pp. 12, 39), Qara Quzaq (Valdés-Pereiro 2008, p. 324), Tell Banat Tomb 9 (McClellan and Porter 1999, pp. 108, 114, fig. 3), Jerablus Tahtani Grave 612.1 (Peltenburg 2015, p. 250) Tomb 83 at Shiyoukh Tahtani, as well as at various shaft-and-chamber tombs at Tell Bi’a (Strommenger and Kohlmeyer 1998, p. 44) pottery was found above the tombs, probably relating to libation or *kispu* activities (Sconzo 2006, p. 348). Additional burials were placed above Tell Banat Tomb 7 (Porter 2002b, p. 19), Tell Bi’a Tomb U:43 (Strommenger and Kohlmeyer 1998, p. 104) and the high-status tomb at Arslantepe (Frangipane 2007–2008).

⁸⁹ van Loon and Meijer 2001, pp. 212–213.

⁹⁰ For example, Chadwick 2013, p. 295; Hingley 1996, p. 241.

⁹¹ see also Peltenburg 2015, pp. 234–236; Valentini 2011, p. 277.

example, at Tomb 9 at Umm el-Marra, large boulders were tossed onto the tomb's floor, destroying the human remains and grave goods.⁹² Schwartz sees it as a deliberate attempt either by non-elites to 'counter the production of elite social memory, in acts that we might characterize as resistance' by presenting the authorities as despised and illegitimate figures, or by rival elites 'discrediting earlier authorities and severing the connection between the living community and the previously revered ancestors.'⁹³ It is assumed that in societies where ancestors played a prominent political role, 'ancestor tombs and images can become targets of martial conquest'.⁹⁴ Crawford notes that the destruction of an enemy's site of memory, especially those of ritual significance, is a well-documented occurrence throughout ancient and even contemporary history.⁹⁵ To her, 'the destruction of memory becomes more powerful, when traces of this destruction continue to inhabit the visual landscape.'⁹⁶ In this process, communities physically create and record their histories and memories.⁹⁷ Destruction of tombs and the removal of grave goods can, therefore, be seen as a denigration of the deceased's social status and also of that of their offspring.⁹⁸

Not only the tomb structure itself, but also the grave goods and human remains were the target of destruction. Removal of artefacts from tombs could be meant to deprive the realm of the dead in order to harm the living descendants though the damage of family prestige.⁹⁹ The intentional destruction of pottery and other grave goods, as well as human bones, at a much larger scale is present at several tombs at Shams ed-Din.¹⁰⁰ Peltenburg interprets the violation of human remains as an act of 'creative vandalism' through an assault on symbols of power of emerging political structures.¹⁰¹ For him, 'in societies where ancestors housed inside tombs played such politically enduring roles, despoiled human bones must have been of the utmost significance within a politically motivated desecration.'¹⁰² Chase and Chase label such forms of later activities at tombs as 'transformational re-entry'.¹⁰³ They represent an intentional disturbance 'both of the interment and the social contract between the dead and the living', in contrast to 'traditional re-entries', which occurred in order to incorporate additional individuals and artefacts or remove relics for ceremonial purposes. To them, transformational re-entries served political purposes and could be indicative of socio-political changes.¹⁰⁴ Strommenger and Kohlmeyer assume, as well, that the alleged robbing of the mausoleums at Tell Bi'a took place when a new ruling elite arrived that did not feel obligated to the previous rulers of the site.¹⁰⁵ If the destructive evidence of reuse, that is, the demolition of the tomb structure and the smashing of grave goods and human remains, is to be associated with acts of political significance as suggested by the various authors above, it should — comparable to

⁹² Schwartz 2013, p. 507.

⁹³ Schwartz 2013, p. 507.

⁹⁴ McAnany and Negrón 2010, p. 149.

⁹⁵ Crawford 2007, p. 26.

⁹⁶ Crawford 2007, p. 27.

⁹⁷ Eckardt and Williams 2003, p. 144.

⁹⁸ Bill and Daly 2012, p. 809.

⁹⁹ Klejnäs 2011, pp. 196, 208; see also Savage 1995, p. 126.

¹⁰⁰ Meyer 1991, p. 21.

¹⁰¹ Peltenburg 2015, pp. 247–248.

¹⁰² Peltenburg 2015, p. 247; see also Richardson 2007, p. 192.

¹⁰³ Chase and Chase 2011, pp. 88–89.

¹⁰⁴ Chase and Chase 2011, p. 89.

¹⁰⁵ Strommenger and Kohlmeyer 2000, p. 13.

grave robbery and ancestor veneration — take place at the tombs of elites. While this is the case at Umm el-Marra, Jerablus Tahtani and Tell Bi'a, at other sites such as Shams ed-Din and Mari, mainly non-elite tombs are targeted. Thus, other explanations for destructive activities at less prominent tombs have to be sought. It has been suggested that grave goods were given to the deceased only as long as their physical body was intact. Afterwards, they were meant to return to the property of the living.¹⁰⁶ Nasrallah refers to historic funerary rituals in Syria that involved breaking pottery into pieces.¹⁰⁷ The smashing of human bones could be part of funerary rituals. Both explanations cannot, however, account for Early Bronze Age Syria as in such a scenario the majority of tombs should be subjected to this treatment, which is by far not the case. Instead, later activities are only attested at a small portion of all Early Bronze Age tombs in Syria. Individual tombs were selected and targeted for reuse.

Possibly, the individuals buried at such tombs were special for reasons other than their position in the social hierarchy. An indication can be found at Mari Tomb 1026. Here, a sarcophagus contained the skeleton of a young individual, whose left femur is 1.5 cm longer than the right one. This would possibly have made the individual special during its lifetime and, therefore, requiring a special form of burial. At the time of excavation, the feet were missing.¹⁰⁸ There is also the idea of revenants. Popular and historical sources are full of stories about the dead rising from their tomb and countermeasures that have to be taken, some of them including later actions at the tomb.¹⁰⁹ This is also a possible explanation by Meyer as to why the human remains at Shams ed-Din were violated.¹¹⁰ It does, however, not explain, why there is a higher number of tombs with smashed human remains at Shams ed-Din (13 out of 72 tombs) compared to other sites, where smashing of bones is not or only rarely attested. An increased fear for revenants at Shams ed-Din seems unlikely. Meyer points out also that the smashing of human bones is only possible after the decomposition of the body, which might take several years.¹¹¹ This is most probably longer than a deceased is expected to wait before rising from the dead. Both interpretations provide interesting approaches, but they clearly do not go far enough to provide an all-encompassing explanation for later activities, especially at non-elite tombs in Early Bronze Age Syria. Most likely, there is no single explanation that can reveal the manifold ways of later activities. Nevertheless, this article has demonstrated that 'grave robbery' is too simplistic to explain all forms of destructive activities, while ancestor veneration or destruction for political ends is only applicable at selected elite tombs.

5. Summary

Reuse activities at Early Bronze Age tombs in Syria are a rare phenomenon. They occur in additive forms, where objects or new burials were put into tombs at a later point in time, and destructive forms, where grave goods and human remains were removed, displaced, or intentionally broken and the built environment of the tomb damaged. Those activities are frequent at tombs that are

¹⁰⁶ Müller 1976, p. 225.

¹⁰⁷ Nasrallah 1963, p. 36.

¹⁰⁸ Jean-Marie 1999, p. 187.

¹⁰⁹ Aspöck 2003, p. 227; Tempelmann-Mączyńska 1998.

¹¹⁰ Meyer 1991, pp. 159–160.

¹¹¹ Meyer 1991, pp. 159–160.

well visible in the landscape and have a built space. Geographical or chronological patterns of reuse cannot be established, at least not with the current data available. As nothing in the data presented above points towards illicit economic gain, grave robbery is the least likely explanation for later activities encountered at Early Bronze Age tombs in Syria. Neither objects of high economic value such as metal were specifically targeted, nor larger and therefore presumably richly equipped tombs compared to smaller ones. Ancestor veneration and intentional destruction are both valid explanations, but only for a limited set of data. If funeral rituals generally required later activities, then secondary burials, removal of grave goods, or breaking of both grave goods and human remains, should be visible at most Early Bronze Age tombs. If such practices targeted elites, then these activities should (only) be present at the largest, richest, or most prominently located tombs, which is not the case. Thus, for non-elite tombs, other explanations have to be sought. These might include the special status of the buried individual due to circumstances other than position in the social hierarchy, or be connected to the fear for revenants. Such explanations are only two of likely a great variety of reasons for the multitude of different activities attested at the tombs. The study of reuse is important as it could demonstrate that the previous widespread explanation of Early Bronze Age tomb disturbance, that is, grave robbery, is implausible for most cases. Future interpretations should not dismiss the impact of later activities on the original burial. By considering reuse, it will be possible to reconstruct the complex and long lasting processes connected to the use of tombs over the course of time.

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| Site | Tomb | Type | Date | Grave Goods | Grave Goods Present | Skeleton | Tomb Structure | Literature |
|---------------------|-------|-------------------------------------|---|---|--|--|---|--|
| Abu Ḥamad | J10 | tumulus/ dolmen/ above ground | 2700–2300 BC | partially missing; displaced | pottery jars; carnelian, shell, and fritte beads; shell rings; antropomorphic terracotta figurine; animal bones | n.s. | covering stones removed | Krasnik 2005, p. 42 |
| Abu Ḥamad | M1 | tumulus/ dolmen/ above ground | 2700–2300 BC | partially missing | 8 fragments of pottery vessels, 4 beads | missing | covering stones out of position | Krasnik 2005, pp. 46–48 |
| Abu Ḥamad | Z2 | shaft-and- chamber | 2700–2300 BC | partially missing | pottery vessels; beads; bronze ring; shell pendant; bronze axe on higher level in fill | partially displaced; 3 individuals | door slab out of position | Krasnik 2005, pp. 57–58 |
| Carchemish | KCG 3 | cist (stone) | – | displaced | 24 pottery vessels | missing | covering stones removed | Woolley 1952, p. 220 |
| Germayir | GG 25 | ceramic container | – | n.s. | pottery jars; 2 terra cotta figurines; fatence amulet | missing | pottery jar broken | Mallowan 1937, p. 125 |
| Jerablus Tahtani | To302 | tumulus/ dolmen/ above ground | 2750–2250 BC | partially missing; later addition of “commemorative deposits” (Phase 3) and refuse (Phase 4) | Phase 1: c. 400 pottery vessels; 20 copper/bronze objects; beads and other objects; Phase 3: c. 200 pottery vessels; copper/bronze axes, daggers, spearheads, pins; rings; beads zoomorphic figurines; lead object; Phase 4: 5 pottery vessels; modle veels; pounders and querns; inlay | Phase 1: min. 13 adults, 5 children | covering stones removed | Peltenburg <i>et al.</i> 2015, pp. 45–67 |
| Jerablus Tahtani | To781 | cist (stone) | Early Middle Euphrates I–IV; 3200–2250 BC | – | 1 pottery vessel | two individuals, one adult, one child; skull missing | – | Peltenburg <i>et al.</i> 2015, pp. 70–71, 233 |
| Jerablus Tahtani | T1036 | cist (stone) | Early Middle Euphrates I–IV; 3200–2250 BC | – | 5 pottery vessels; 17 pins and pin fragments; parts of dagger(s); silver earring; figurines; beads; pendant | scattered human bones of 2 to 4 individuals | – | Peltenburg <i>et al.</i> 2015, pp. 73–75 |
| Jerablus Tahtani | T1369 | cist (stone) | Early Middle Euphrates I–IV; 3200–2250 BC | – | 2 pottery vessels; 27 beads; 3 pendants | skeleton of a child; foetus buried in pottery vessel | burial in pottery vessel possible reuse | Peltenburg <i>et al.</i> 2015, pp. 75–76 |

| Site | Tomb | Type | Date | Grave Goods | Grave Goods Present | Skeleton | Tomb Structure | Literature |
|-----------------|------------|-----------------------------|---|----------------------|---|--|------------------------------|--|
| Jerablus Tahani | T2845 | pit | Early Middle Euphrates I–IV; 3200–2250 BC | – | 8 pottery vessels; pins; a possible metal blade; female figurines | missing | – | Peltenburg <i>et al.</i> 2015, pp. 88–89 |
| Mari | Tombe 0042 | cist (mud-brick) | – | (partially) missing? | 1 large pottery vessel | missing? | – | Jean-Marie 1999, pp. 112–113 |
| Mari | Tombe 0050 | sarcophagus | – | missing | none | missing | recovered with gypsum slaps | Jean-Marie 1999, p. 113 |
| Mari | Tombe 0054 | sarcophagus | – | missing | none | missing | – | Jean-Marie 1999, p. 113 |
| Mari | Tombe 0059 | ceramic container | – | n.s. | pottery vessel; bronze needle | 3 skulls of children | – | Jean-Marie 1999, p. 114 |
| Mari | Tombe 0300 | tumulus/dolmen/above ground | – | n.s. | 44 pottery vessels; 14 bronze objects (mirrors, goblets and cups); jewellery including gold and silver pectorals, pearls and gold rings, lapis lazuli beads | partially missing; one crushed skull close to entrance; according to Parrot 1938 from a living sacrifice | large holes in stone ceiling | Parrot 1938, pp. 4–8; Jean-Marie 1999, pp. 132–133 |
| Mari | Tombe 0477 | cist (mud-brick) | – | (partially) missing | 2 pottery vessels | missing | – | Jean-Marie 1999, p. 147 |
| Mari | Tombe 0529 | ceramic container | – | n.s. | 4 pottery vessels; fragment of figurine | skeleton of an infant | jar broken | Jean-Marie 1999, p. 151 |
| Mari | Tombe 0685 | ceramic container | – | (partially) missing? | 1 pottery vessel | (partially) missing; one bone and one tooth remaining | – | Jean-Marie 1999, p. 163 |
| Mari | Tombe 0687 | sarcophagus | – | partially missing | bronze fragment | partially missing; displaced | – | Jean-Marie 1999, p. 163 |
| Mari | Tombe 0692 | sarcophagus | – | n.s. | 4 pottery vessels | displaced | – | Jean-Marie 1999, p. 164 |
| Mari | Tombe 0709 | sarcophagus | – | missing | none | partially missing; displaced | sarcophagus badly damaged | Jean-Marie 1999, p. 165 |

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|------|------------|-------------------|---|---|----------------------|--|--|---|---|
| Mari | Tombe 0719 | ceramic container | – | – | missing | none | 1 bone | jar broken | Jean-Marie 1999: 165 |
| Mari | Tombe 0755 | cist (mud-brick) | – | – | missing | none | missing | covering stones partially removed; closed again with mat covered in bitumen | Jean-Marie 1999, p. 168; Margueron 1983 |
| Mari | Tombe 0782 | ceramic container | – | – | n.s. | 6 pottery vessels | only skull present | – | Jean-Marie 1999, p. 170 |
| Mari | Tombe 0788 | sarcophagus | – | – | missing | none | missing | – | Jean-Marie 1999, p. 171 |
| Mari | Tombe 0928 | shaft-and-chamber | – | – | n.s. | 26 pottery vessels; several bronze objects including needles; silver ring; 2 gold beads; other stone objects | (partially) missing; displaced | shaft of unknown purpose; sunk more than four metres beneath floor | Jean-Marie 1999, pp. 180–181 |
| Mari | Tombe 0939 | sarcophagus | – | – | (partially) missing? | 1 pottery vessel | missing | sarcophagus damaged | Jean-Marie 1999, p. 182 |
| Mari | Tombe 0945 | sarcophagus | – | – | n.s. | 8 pottery vessels; bones of caprine | partially missing | – | Jean-Marie 1999, p. 183 |
| Mari | Tombe 0947 | sarcophagus | – | – | (partially) missing? | 1 bronze fragment; bones of caprine | missing | – | Jean-Marie 1999, p. 183 |
| Mari | Tombe 0956 | sarcophagus | – | – | missing | none | missing | sarcophagus damaged | Jean-Marie 1999, pp. 183–184 |
| Mari | Tombe 1022 | sarcophagus | – | – | – | 7 pottery vessels; bronze arrowhead; bronze dagger; clay ball | adult skeleton in crouched position, pushed to side | recovered with gypsum slaps and pottery sherds | Jean-Marie 1999, p. 186 |
| Mari | Tombe 1026 | sarcophagus | – | – | – | 5 pottery vessels; several bronze objects | adolescent, crouched position; feet missing; left femur 1,5 cm longer than right one | – | Jean-Marie 1999, p. 187 |

| Site | Tomb | Type | Date | Grave Goods | Grave Goods Present | Skeleton | Tomb Structure | Literature |
|-------------|------------------------|-------------------|----------------------|--|---|--|--|---|
| Mari | Tombe 1027 | ceramic container | – | n.s. | none | 1 skeleton; some bones deformed | – | Jean-Marie 1999, p. 187 |
| Mari | Tombe 1032 | sarcophagus | – | n.s. | 4 pottery vessels | partially missing; bones of child | – | Jean-Marie 1999, p. 187 |
| Melebiya | Tombe 2494 | cist (mud-brick) | – | missing | none | missing | – | Lebeau 1993, p. 232 |
| Rifa'at | Burial 4 | pit | EBA IV; 2600–2100 BC | | | only skull present | | Matthers 1980, p. 328 |
| Selenkahiye | Q26 XVI | shaft-and-chamber | 2400–2000 BC | displaced | 18 pottery vessels; shell bead; silver hair spiral; 2 bronze pins | two skeletons; both incomplete; displaced | – | van Loon 1979, pp. 104–106; van Loon and Meijer 2001, p. 205 |
| Selenkahiye | Tomb P+Q (R 26 Tomb 1) | shaft-and-chamber | Akkad; 2350–2105 BC | objects added later in the filling of the shaft | Shaft: bronze fragments; Burial 1: 75 pottery vessels; 2 silver objects; 4 bronze pins; 1 bronze dagger; 1 bronze pike; bronze fragments; 2 limestone statuettes; 1 limestone cosmetic tray; Burial 2: 12 pottery vessels | Burial 1, Skeleton A: moved aside; Skeleton B: disturbed around head; Burial 2: several ribs, arm bones, finger bones out of place | blocking of the tomb partially removed | van Loon and Meijer 2001, pp. 166–177 |
| Selenkahiye | U25 | pit | 2400–2000 BC | – | 7 pottery vessels | skeleton incomplete; 12–15 years old | – | van Loon and Meijer 2001, p. 209 |
| Selenkahiye | W12/I3 | shaft-and-chamber | 2300–2000 BC | displaced; later objects added at higher level in burial chamber | “the richest of all burials in Selenkahiye”; chamber I: 23 pottery vessels; bronze pins; ovid bones; three limestone statuettes deposited at a higher level than the original burial together with 21 pottery vessels; a bronze knife; chamber II: 30 pottery vessels; dagger; silver buckle, six silver beads, 2 silver pendants, 5 bronze bracelets; 3 bronze pins, 15 silver ringlets, bronze seah; 5 bronze buttons, bronze diadem; 2 silver rings; silver lion pendant | chamber I: 1 skeleton; chamber II: two skeletons; displaced; | – | Van Loon 1979, pp. 101–102; van Loon and Meijer 2001, pp. 210–213 |

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|--------------|---------|-------------------|--------------|--|---|---------------------------------|---------------------------------------|-----------------------|
| Shams ed-Din | Tomb 01 | shaft-and-chamber | 2300–2100 BC | partially displaced; partially missing; intentionally broken | pottery jars; fingerings; bracelet; fragments of silver and bronze needles; arrowhead; beads | displaced; intentionally broken | ceiling and shaft damaged | Meyer 1991, pp. 19–21 |
| Shams ed-Din | Tomb 05 | shaft-and-chamber | – | partially missing; intentionally broken | pottery | intentionally broken | – | Meyer 1991, p. 33 |
| Shams ed-Din | Tomb 06 | shaft-and-chamber | – | partially missing; intentionally broken | pottery | intentionally broken | – | Meyer 1991, p. 33 |
| Shams ed-Din | Tomb 10 | shaft-and-chamber | – | partially missing; intentionally broken | pottery | intentionally broken | hole in ceiling | Meyer 1991, p. 39 |
| Shams ed-Din | Tomb 22 | shaft-and-chamber | – | intentionally broken | n.s. | intentionally broken | secondary entrance; door slab missing | Meyer 1991, p. 47 |
| Shams ed-Din | Tomb 24 | shaft-and-chamber | – | intentionally broken | n.s. | intentionally broken | door slab missing | Meyer 1991, p. 47 |
| Shams ed-Din | Tomb 27 | shaft-and-chamber | – | intentionally broken | pottery fragments | intentionally broken | hole in ceiling | Meyer 1991, p. 48 |
| Shams ed-Din | Tomb 29 | shaft-and-chamber | – | intentionally broken | n.s. | intentionally broken | – | Meyer 1991, p. 48 |
| Shams ed-Din | Tomb 33 | shaft-and-chamber | – | intentionally broken | n.s. | intentionally broken | secondary entrance; door slab missing | Meyer 1991, p. 49 |
| Shams ed-Din | Tomb 51 | shaft-and-chamber | – | partially missing; intentionally broken | pottery vessels | intentionally broken | hole in ceiling; door slab missing | Meyer 1991, pp. 65–67 |
| Shams ed-Din | Tomb 60 | shaft-and-chamber | 2400–2300 BC | partially missing | pottery jars; bronze bracelet; shell, stone, carnelian, and lapis lazuli beads; shell rings; bronze fragments | n.s. | – | Meyer 1991, pp. 80–82 |

| Site | Tomb | Type | Date | Grave Goods | Grave Goods Present | Skeleton | Tomb Structure | Literature |
|--------------|----------------------------------|-------------------|---|----------------------|---|--|---|--|
| Shams ed-Din | Tomb 73 | shaft-and-chamber | – | intentionally broken | pottery jars | intentionally broken | – | Meyer 1991, p. 91 |
| Shams ed-Din | Tomb 88 | shaft-and-chamber | – | intentionally broken | pottery jars | intentionally broken | – | Meyer 1991, p. 94 |
| Shams ed-Din | Tomb 93 | shaft-and-chamber | – | intentionally broken | pottery jars | intentionally broken | door slab broken | Meyer 1991, p. 95 |
| Tell 'Atij | D ₁₃ A ₃ ' | cist (mud-brick) | Early Dynastic; 2900–2350 BC | n.s. | a dozen pottery jars | missing | n.s. | Fortin 1988, p. 147 |
| Tell 'Atij | tell secondaire | cist (mud-brick) | Ninive 5/Early Dynastic; 3100–2700 BC | displaced | pottery jars | n.s. | disturbed | Fortin 1990, p. 247 |
| Tell 'Atij | tell secondaire | cist (mud-brick) | Ninive 5/Early Dynastic; 3100–2700 BC | displaced | pottery jars | n.s. | disturbed | Fortin 1990, p. 247 |
| Tell Banat | Tomb 4 | cist (stone) | 2400–2300 BC | present | 14 pottery jars | partially missing; piled up against eastern wall | n.s. | McClellan and Porter 1999, p. 109; Porter 2002b, p. 17 |
| Tell Banat | Tomb 5 | cist (stone) | 2600–2450 BC | missing | none | n.s. | “badly damaged” | McClellan and Porter 1999, p. 109 |
| Tell Banat | Tomb 6 | shaft-and-chamber | 2600–2450 BC | disturbed | three pottery vessels, few scraps of silver jewellery; beads; several bronze pieces | no remains in central chamber; mixed human and animal remains in later chamber | “damaged in antiquity” | McClellan and Porter 1999, p. 109; Porter 2002b, pp. 20–21 |
| Tell Banat | Tomb 7 | shaft-and-chamber | 2700–2300 BC | displaced | c. 200 pottery vessels, alabaster jars; decorated stone dish; lapis lazuli bottle stoppers; gold studs; stone inlay pieces and other inlaid objects; ostrich eggs; gold pendant; lapis lazuli fly bead; gold and stone beads; animal bones | displaced, few articulated skeletons; skeletons of female adult and female child in top levels of shaft | covering stones and part of the walls removed | McClellan and Porter 1999, pp. 109–110; Porter 2002b, pp. 17–19 |

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|------------|--------------------|-----------------------------|---|--|--|---|----------------------------------|--|
| Tell Banat | Tomb 9 | cist (stone) | 2600–2450 BC | n.s. | pottery vessels; cache of silver neck and arm rings; deposit of ceramics outside the tomb on top of roof slaps | missing | roof slabs not intact | Porter 2002b, pp. 19–21 |
| Tell Br'a | 24/49:1 | pit | Level IIIa = EBA Ivb + IIIb? = EBA IV–MBA; 2100–2000 BC | – | none | 9 to 11 year old girl thrown head first into ash pit above shaft-and-chamber tomb 24/49:3 | – | Strommenger and Kohlmeier 1998, p. 32 |
| Tell Br'a | 24/49:7 | shaft-and-chamber | Level IIIa = EBA IVb; 2350–2100 BC | partially missing; personal adornments and objects that are normally deposited around the upper part of the body are missing | 18 pottery vessels | upper parts of skeleton missing | partially preserved | Strommenger and Kohlmeier 1998, pp. 36–37 |
| Tell Br'a | Tomb 1 (Grabbau 1) | tumulus/dolmen/above ground | Level I = EBA; 2700–2400 BC | | | | | Strommenger and Kohlmeier 2000, p. 10 |
| Tell Br'a | Tomb 2 (Grabbau 2) | tumulus/dolmen/above ground | Level I = EBA; 2700–2400 BC | partially missing | 29 pottery vessels; ivory shaft of dagger; 2 copper/bronze needles; animal bones | missing | – | Strommenger and Kohlmeier 2000, p. 10; Strommenger and Kohlmeier 1998, pp. 51–53 |
| Tell Br'a | Tomb 3 (Grabbau 3) | tumulus/dolmen/above ground | Level I = EBA; 2700–2400 BC | partially missing; displaced | 147 pottery vessels; copper/bronze and silver needle; silver pendant; silver rings; beads made of lapis lazuli, shells; fritte, and other stones; ostrich egg shells; animal bones | human remains of 6 individuals | secondary access in eastern wall | Strommenger and Kohlmeier 2000, pp. 10–11; Strommenger and Kohlmeier 1998, pp. 53–61 |
| Tell Br'a | Tomb 4 (Grabbau 4) | tumulus/dolmen/above ground | Level I = EBA; 2700–2400 BC | partially missing; displaced | 114 pottery vessels; gold and bronze needles; gold sheet; gold, lapis lazuli and other bead; bronze objects | human bones of 17 individuals pushed to two piles | secondary access in western wall | Strommenger and Kohlmeier 2000, p. 11; Strommenger and Kohlmeier 1998, pp. 61–68 |

| Site | Tomb | Type | Date | Grave Goods | Grave Goods Present | Skeleton | Tomb Structure | Literature |
|-------------|--------------------------|-------------------------------------|---|--|---|-----------------------------|---|--|
| Tell Br'a | Tomb 5 (Grabbaubau 5) | tumulus/ dolmen/ above ground | Level I = EBA; 2700–2400 BC | partially missing; displaced | 11 pottery vessels; bronze needles; inlays; beads; animal bones | displaced; 4 individuals | – | Strommenger and Kohlmeier 2000, p. 12; Strommenger and Kohlmeier 1998, pp. 68–73 |
| Tell Br'a | Tomb 6 (Grabbaubau 6) | tumulus/ dolmen/ above ground | Level I = EBA; 2700–2400 BC | partially missing; displaced | 32 pottery vessels; bronze needles; bronze daggers; silver and bronze hairings; beads; inlays; ostrich eggs; animal bones | disturbed | – | Strommenger and Kohlmeier 2000, p. 12; Strommenger and Kohlmeier 1998, pp. 73–76 |
| Tell Br'a | U:23 | shaft-and- chamber | Level II = EBA IVa; 2600–2350 BC | (partially) missing; displaced | 9 pottery vessels; bronze needle | displaced | n.s. | Strommenger and Kohlmeier 1998, pp. 93–94 |
| Tell Br'a | U:30 | shaft-and- chamber | Level II + IIIa = EBA IVa + IVb; 2600–2100 BC | – | 14 pottery vessels | partially missing | mud-brick blocking partially disturbed | Strommenger and Kohlmeier 1998, pp. 97–98 |
| Tell Brak | CH Room 12 | pit | Akkad/Ur III; 2350–2000 BC | disturbed | none | disturbed | disturbed | Mallowan 1947, p. 70 |
| Tell Brak | CH Room 12 | pit | Akkad/Ur III; 2350–2000 BC | disturbed | none | disturbed | disturbed | Mallowan 1947, p. 70 |
| Tell Brak | FS Level 2 Burial 1 | cist (mud-brick) | | missing; several objects in filling of shaft | from the filling: 14 sealings; cylinder seal; fish bones; 2 copper/bronze objects | missing | secondary access shaft | Oates, Oates and McDonald 2001, pp. 66–67 |
| Tell Hadidi | Area D | shaft-and- chamber | EBA; reuse LBA | partially missing | “very little” | reuse as burial in LBA | n.s. | Dornemann 1977, p. 118; Cooper 2006, p. 225; Dornemann 1980, pp. 226–227 |

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|--------------|----------------|-------------------|--------------------------|--------------------------------------|---|--|--|---|
| Tell Hadidi | Area L Tomb I | shaft-and-chamber | EBA IV; 2400–2300 BC | partially missing | pottery vessels; fragments of metal objects; hundreds of beads | reuse as burial in LBA | n.s. | Dornemann 1988, pp. 26–38; Cooper 2006, pp. 225–226; Dornemann 1977, p. 118 |
| Tell Hadidi | Area L Tomb II | shaft-and-chamber | LBA or EBA | n.s. | n.s. | reuse as burial in LBA | “badly disturbed” | Cooper 2006, pp. 226–227; Dornemann 1977, p. 149; Dornemann 1980, p. 227 |
| Umm el-Marra | Tomb 3 | cist | EBA IVa; 2600–2350 BC | partially missing; displaced; broken | at least 62 ceramic vessels; animal bones (sheep/goat, geese, duck, dog, equid, cattle, weasle, frog); bone awl, perforated gazelle horn core | displaced; bones of adult and adolescent | “much disturbance” | Schwartz 2007, pp. 41–42; Schwartz <i>et al.</i> 2006, p. 610; Schwartz 2013, p. 501 |
| Umm el-Marra | Tomb 5 | cist | EBA III; 2700–2600 BC | partially missing; displaced | few reconstructible ceramic vessels; few animal bones (sheep/goat, duck, geese, hare, pig, fox) | displaced; bones of adult male and infant | “much disturbed” | Schwartz 2007, pp. 41–42; Schwartz <i>et al.</i> 2006, pp. 606–607; Schwartz 2013, p. 500 |
| Umm el-Marra | Tomb 9 | cist | EBA IV; 2600–2100 BC | n.s. | n.s. | displaced; bones of at least 3 individuals | “substantially looted”; stone boulders tossed onto the floor | Schwartz 2013, p. 502 |

Gender variance in the Ancient World: Near Eastern influences on the Aegean prehistoric past

Georgia COMTE

Abstract

*This paper seeks to explore the relationship between the Near East and the Aegean, particularly the dynamic exchange of ritual tradition that can be traced from Mesopotamia to Minoan and then Mycenaean Crete. Through an analysis of Mesopotamian art and poetry, the contested presence of castrated attendants and the tradition of castration itself is established. The tenuous relationship between castration and homosexuality is challenged to underscore a fluidity in Mesopotamian conceptions of gender. The evident fluidity exhibited by both Mesopotamian and Aegean artworks points to a broader understanding of the function of gender and gender transformation in both cultures. This paper offers a reanalysis of the singers apparent on the obverse of the Harvester Vase as well as the phorminx bard depicted on the Hagia Triada sarcophagus. These Aegean examples form the primary basis of analysis, demonstrating that the Aegean artists may have borrowed Mesopotamian conventions surrounding the depiction of castrated individuals, suggesting continuity with Mesopotamian ritual-musical castration practices.**

Introduction

It is well known that the cult of Inanna and later Ištar honoured the presence of gender and sexual diversity in Mesopotamian society. In many ways, the worship of this goddess societally sanctioned gender and sexual difference, though in specific cult contexts. Many archaeologists who choose to explore this aspect of Mesopotamian society are confronted with the abundant but often fragmentary, and occasionally conflicting evidence of cultic practices which appeared to have involved individuals of indeterminate or divergent gender. The resulting scholarship is understandably somewhat at odds with itself. Scholars such as Gwendolyn Leick, Patrick Taylor and Ilan Peled among others, have variously read these figures as both gender divergent and, in some cases, concurrently homosexual. Similarly, these figures have been tied to a tradition of castration frequently attested in the later phase of Assyrian history. Although the extent to which this tradition of castration can be traced back and attached to the earlier iterations of Ištar's cult is at times difficult to establish, artistic renderings suggest physiques consistent with those of castrated men.

* I would like to acknowledge Andrew Jamieson who encouraged me from the beginning to develop my ideas and believed in my work. Without his assistance this paper would never have happened, I am so grateful for his tireless assistance throughout this process. I would also like to thank Louise Hitchcock for her advice. Both Andrew and Louise have been phenomenal educators and mentors of mine since I began my academic pursuit of archaeology. I would also like to thank Mary Emerson for some very sound advice to an early career academic.

There is certainly iconographical congruence between images from as far back as the Early Dynastic period and the much later Assyrian phase. What's more, imagery from the Aegean, specifically examples from the Middle and Late Minoan and Early Helladic period, demonstrate connectivity with these Mesopotamian precedents. Given the rich cultural exchange widely attested between the Aegean and the Near East, transference of cultural practices is equally plausible. With the potential of this transference in mind, this paper will explore Aegean material, in particular the Hagia Triada Sarcophagus, in conversation with Near Eastern material in an attempt to elucidate a potential facet of gender variant practices in Minoan and Mycenaean culture.

Before moving forward, it is necessary to define the precise theoretical sphere within which this study takes place. First and foremost, this paper challenges the structuralist notion of gender binarism that has pervaded Aegean studies for many years. The oppositional relationships between Minoan and Mycenaean, man and woman, in Aegean prehistoric studies has been predicated upon a notion of gender which is more contemporary with the recent historical past than with the distant ancient one.¹ The projection of these supposed stable categories has stifled any meaningful study of potential liminality in Mycenaean culture. In line with Butler's theory, gender, rather than operating as an established, pervasive, stable definitive, is a fluid and highly performative construct dependant on a multitude of specific characteristics.² The biological sex of the individual is not necessarily the defining characteristic, and thus there can be fluidity between the categories of masculine and feminine, as well as categories beyond these. There is an additional complexity when examining these concepts in terms of the ancient world, particularly when mutilation of castration can represent an 'interruption' of gender predicated on anatomical grounds.

Nevertheless, it must be stated, that the notion of gender itself is constructed, and subject to reconstitution and frequent disruption. The terms 'third-gender' or 'gender ambiguous' have been explored by archaeologists such as Hitchcock, Peled and Stökl in answer to this liminality between masculine and feminine.³ These are useful when analysing visual images in particular, as iconographical codes that seem mixed or 'confused' may point to an intentional rendering of gender complexity. If, as Butler, asserts, gender is a primarily performative category, then the enaction of both or multiple genders in figural art may indicate the existence of third-gender individuals.

In this case, castration will be considered an anatomical enaction of gender difference. It is, particularly in Mesopotamian society, evidence of the 'queering' of gender norms.⁴ Gary Taylor has suggested that eunuchs have been a fundamental part of Mesopotamian society since the reign of Hammurabi (1792–1750 BC), since one Uruk text refers to Ishtar (or Inanna), who was herself a gender transgressive goddess, as the "[maker of] eunuchs."⁵ However, iconographic analysis proves that these individuals may have existed for many hundreds of years prior. There is little doubt that these figures represented a liminal space between masculine and feminine. In line with the argument put forward by Sean D. Burke concerning the figure of the eunuch in history as a

¹ Many archaeologists concerned with gender studies now offer a re-examination of complex codes of representation in Minoan fresco iconography to include more diverse readings of masculinity, femininity, and other gender identities. Notably: Hitchcock 2009; Nikolaidou 2012; McGowan 2011; Chapin 2012.

² Butler 2005, p. 179.

³ Hitchcock 2009, p. 11; Stökl 2013, p. 68; Peled 2016, p. 19.

⁴ Burgh 2004, p. 130.

⁵ Taylor 2002, p. 179; Peled 2016, p. 283. Cf. Pryke categorises 'eunuch' figures as men 'othered' by religious status rather than a strict category of their own (Pryke 2017, p. 62).

gender ‘queering’ agent, it seems probable that these castrated performers enacted a gender demarcation that was neither fully masculine nor fully feminine. Their beardless, feminised masculine-adjacent presentation alone constituted a substantial, intentional challenge to the hegemonic ‘bearded male’ identity.⁶ The complex combination of male and female figural codes was an intentional rendering of both an anatomical and theoretical third-gender reality instituted in the worship of Ištar/Inanna.

In examining the Mesopotamian exemplar, it is necessary to confront a particularity in the current literature. There is much debate concerning the presence of early castrated individuals, and whether these individuals represent gender diversity or sexual diversity. In large part the complication and conflation in the scholarship surrounding the attendants of the great goddess is a consequence of a lack of distinction between sex, sexuality, and gender. One prominent example comes from interpretation of perhaps the earliest record of these individuals. The earliest known title accorded to an attendant of Inanna/ Ištar comes from third millennium references to the *gala* priests (sometimes known as the *kalû* in Akkadian texts).⁷ The mythic origin of these singing priests can be traced back to an Old Babylonian text that refers to Enki creating them for the purpose of singing “heart-soothing” laments for the goddess Inanna.⁸ The scholarly consensus concerning these functionaries generally regard them as inherently homosexual figures. This is not necessarily without merit. Indeed, the word *gala* itself is a combination of two Sumerian logograms that approximate to GÌŠ.DÚR which is a combination of ‘penis’ and ‘anus’.⁹ This is the seemingly homosexual equivalent of a heterosexual logogram used to connote ‘son-in-law’ written (SAL.ÚŠ)sá, which ties ‘vagina’ and ‘penis’.¹⁰ Furthermore, a Sumerian proverb regarding the *gala* seems to imply that the locus of sexual desire for the *gala* resides in the anus: “when the gala wiped off his ass [he said], ‘I must not arouse that which belongs to my mistress [Inanna]’.”¹¹

However, further evidence put forward by scholars to indicate homosexual proclivity is somewhat problematic. Both Roscoe and Taylor refer to the gender ambiguity inherent in the role of *gala* and conflate this agenderism with homosexual behaviour. This seems primarily because of the combination of ‘feminine’ coded behaviours such as the feminised genderlect known as Emesal that the *gala* purportedly sang in, as well as their adoption of female garb.¹² Roscoe is more explicit in his amalgamation of these two concepts, stating that the *gala* “[adapted] their gender and sexuality”

⁶ Peled 2016, pp. 162–163.

⁷ Taylor 2008, p. 173; Peled 2014, p. 751.

⁸ Roscoe 1996, p. 213.

⁹ Taylor 2008, p. 174.

¹⁰ Taylor 2008, p. 174.

¹¹ Gordon, E., *Sumerian Proverbs: Glimpses of Everyday Life in Ancient Mesopotamia* (Philadelphia: University Museum, 1959), no. 2.100, as quoted in Roscoe 1996, p. 214. There is little reason to suppose that eunuchs could not be aroused in some form, or reach some state of arousal, particularly if the locus of sexual desire resided in the anus, which appears to be the region referenced in this fragment. Certainly, the sexually active *castrati* of the 18th century seem to suggest that sexual activity was possible even where total orgasm was not.

¹² The use of ‘genderlect’ here is consistent with the works of Cooper and Roscoe, that is, a language defined by its relationship to one particular gender, or the associations and characteristics of that gender. In the case of Emesal, once reserved only for women and goddesses for lamentation, love songs or lullabies, one might consider the softness of it or vocal dexterity, particularly in the upper registers, required to sing in it. This recalls the modern — but well-established historical tradition — of the Indian Hijra, who have occupied a similar gender-breaking role, and speak in their own traditional genderlect, Hijra Farsi. It is not uncommon for languages to take on the masculine or feminine connotations of its speaker. For Emesal, see: Cooper 2006, p. 44; Roscoe, p. 214; Taylor 2008, p. 173.



Fig. 1. The Standard of Ur. The singing *gala* can be identified in the top right corner with long hair and crossed arms (Woolley 1934, pl. 91).

according to the femininity of their cultic role.¹³ Artistic representations of the *gala* (Fig. 1) highlight that they visually departed from the typical depiction of Mesopotamian men lacking the quintessential beard. Another representation which has been identified as a ‘male performer’ of the Inanna cult, the Mari statue of the singer Ur-Nanše, reinforces this physical amalgamation of masculine and feminine attributes (Fig. 2). If we are to assume that the fundamental nature of these performers’ genders have been changed, they can no longer be simply classified as men, and therefore the term ‘homosexual’ is no longer an appropriate term. Certainly, these interactions are non-heterosexual, but the assumption that they are implicitly homosexual because of anal sex between an individual typically sexed as male and an effeminate but non-female individual (treated as male by scholars) is highly problematic.¹⁴

Indeed, to consider the *gala* a man in the guise of a woman seems to misinterpret their cultic significance. In multiple ancient Mesopotamian texts, Inanna and her later incarnation, Ištar, are said to transform the gender of her attendants entirely. According to one source from the second millennium, a poem written by high priestess Enheduanna entitled *Inanna: Lady of the Largest Heart*, Inanna alone had the capacity to turn “a male into a female and a female into a male.”¹⁵ This is further attested in another poem from the latter part of the second millennium concerning the dominion of Erra (another name for the god of the underworld otherwise known as Nergal) wherein “*kurgarrus* and *assinus*” are mentioned as attendants “whose masculinity Ištar has turned

¹³ Roscoe 1996, p. 214.

¹⁴ I acknowledge that in recent colloquial parlance the term ‘homosexual’ is often used now to describe more gender diverse sexual relations, but given its use in the scholarship as a term specifically addressing male-male sexual contact, I maintain that it inappropriately categorises gender diverse individuals.

¹⁵ Peled 2014, p. 291.



Fig. 2. The Singer of Ur-Nanshe/Ur-Nina (Ornina).

The Singer of Ur-Nanshe is a gypsum statuette which bears a cuneiform inscription. The statue is identified as a singer exemplifying both masculine and feminine characteristics (Parrot 1953, pl. XXIII).

into femininity to make the people reverend".¹⁶ It is evident that the role of the god Inanna/Ištar, herself a gender-liminal figure, involved an aspect of total gender transformation.

Both the singing *gala* and the singer of Ur-Nanše share similar visual and functional characteristics. The long hair is of particular importance, as it emphasises their 'otherness' and feminisation of an otherwise masculine form. That both representations are of musicians of the Inanna cult underscores a historical continuity between iterations of the goddesses' worship. Another significant feature is the breasts present on the singer of Ur-Nanše which cannot be detected on the arm-crossed *gala* from the Standard of Ur. Both of these images can be traced to approximately the Early Dynastic period. Although the medium of representation for the singing *gala* is not one that lends itself to complex anatomical renderings, it can be assumed that both the singer of Ur-Nanše

¹⁶ Leick 1994, p. 168.

and the *gala* of the Ur lyre represent a similar, if not the same religious functionary. Certainly, the masculine name assigned to the otherwise feminine appearance of the Mari statue implies a relationship of transformation: from male birth to feminine guise, as suggested by the early poetry concerning the Inanna cult. It seems reasonable to extrapolate, then, that the physicality of the singing *gala* and that of the Mari statue are synonymous, and furthermore consistent with castrated individuals. In the case of Ur-Nanše, the breasts and the distribution of fat, particularly around the thighs and hips, combined with the masculine-divergent long hair, suggests that this individual was castrated for cultic purposes. The statue's appearance is certainly consistent with the physicality of an individual castrated before puberty, which may more closely resemble anatomy typically associated with women; less defined musculature, a more feminine distribution of body fat that result in roundness of the buttocks and chest.¹⁷ The *gala* more generally then, would likely have been castrated both in order to physically enact the transformation of gender Inanna was capable of inciting, and for the practical purpose of enhancing their capabilities as singing performers. The structure of their lamentation, believed to be composed in Emesal, a dialect believed to be "softer or more beautiful", certainly suggests that the voices of the *gala* were consistent with female laments also believed to have been composed in Emesal.¹⁸ Here Cooper's understanding of the genderlect (a dialect with a specific gendered connotation) cited earlier may be useful for understanding the ways in which a musical composition intended for female singers can be used as an avenue to express gender liminality or gender difference within performance. A terracotta plaque (Fig. 3) from Ur dated approximately to the Old Babylonian period further emphasises the unusual physical stature of these third-gender individuals. Although this plaque has been classified as a female dancer by the British Museum catalogue, and another like it similarly catalogued by the Penn State Museum, there is clear iconographic synergy between the individuals represented on these plaques and those representations discussed earlier. The appearance of the breasts and prominent soft belly, along with the long hair, suggests that this plaque likely represents one of Inanna's functionaries. Furthermore, these 'feminised' physical characteristics are consistent with the appearance of castrated male-sexed bodies. Although Peled has already identified this figure as a potential representation of a third-gender individual, he has not noted what would appear to be a relatively pronounced phallus with little overt suggestion of testicles.¹⁹ Indeed, it is generally accepted in this period that castration extended only to the testicles and that the remainder of the reproductive system was left untouched, as seen on the terracotta plaque.²⁰ Given the similarity between this representation and those others mentioned previously, we can reconstruct a relatively complete image of these castrated religious musicians across a period of some five hundred or more years.

Here it is necessary to address the multiple linguistic changes that have further confounded the scholarship concerning Ištar's attendants. In some ways, the *gala*, *kurgarru* and *assinu* can all be considered members of the same gender-liminal conglomerate of Ištar attendants. The *gala* creation myth mentioned earlier exists in multiple Sumerian and Akkadian versions.²¹ The Sumerian version

¹⁷ Burke 2013, pp. 108–109.

¹⁸ Taylor 2008, pp. 175–176; Cooper 2006, p. 42.

¹⁹ Peled 2016, pp. 162–163.

²⁰ Burke 2013, p. 97.

²¹ Peled 2015, p. 752.



Fig. 3. Terracotta plaque. This terracotta is a mould made clay plaque depicting an individual with a rounded stomach, long hair, breasts, and potentially a phallus without testicles (© The Trustees of the British Museum).

records the creation of the *gala* as well as the *kurgarru*, while the Akkadian version substitutes these figures with the *assinu* in the Assur middle-Assyrian version and the *kulu'u* in the Neo-Assyrian text from Ninevah.²² It can be assumed based on this mythic substitution of one figure for another that, though these figures in some ways constitute distinct entities, they play a similar gender-bending role. Nevertheless, there are some historical particulars concerning this terminological shift that will be addressed, especially regarding the gender and sexuality of the attendants concerned. A reference to the *sag-ur-sag*, which Peled equates with the Akkadian *assinu* from approximately 1974–54 BCE during the reign of Iddin-Dagan of Isin, comes from the *Inanna Dilibad* hymn and further alludes to the gender-liminality of cult attendants of Inanna:

²² Peled 2015, pp. 752–753.

Their right side they dress with men's clothes,
 They walk before Holy Inanna,
 They adorn their left side with the clothing of women.
 They walk before pure Inanna.
 I would cry "Hail!" to Inanna, the great lady.
 They place the clothing of men on their left side.
 They walk before pure Inanna.²³

This passage certainly implies that the *sag-ur-sag* is similarly gender liminal, much like the *assinu* and the other attendants. The precise definition of *sag-ur-sag* is widely debated. Although John A. Halloran's Sumerian lexicon lists the definition of *sag-ur-sag* as 'eunuch' or 'court attendant' in line with Vern. L. Bullough's 1971 interpretation of the word, their precise nature is unstable across the scholarship.²⁴ Daniel Reisman describes these figures as male prostitutes, Vedeler discusses them in terms of transvestism and transgenderism.²⁵ If Peled's assumption that the *sag-ur-sag* and *assinu* are roughly equivalent is correct, as the hymn seems to suggest, Vedeler's transgender interpretation is likely the most accurate characterisation.²⁶ This does not preclude the possibility that these individuals were castrated, however. The significance of corporal form demonstrated in the iconography earlier, coupled with the emphasis on sex organs and gender enmeshment in many of these cultic titles, certainly implies a relationship between presentation and sexual anatomy. The appearance of the beard bears the same significance as the long-haired beardlessness; in both instances the external characteristics signify something about that individual's sexed body. It is not inconceivable that a transgender identity was attached to the 'mutilation' of typically cisgender male sex organs.

If indeed we accept that these individuals were not simply regarded as castrated males, but that their castration represented an entirely new identity, likely to satisfy the demands of the cult of Ištar, we must accept that they represent an entirely distinct gender. As the above hymn suggests, the eunuch's gender performance was not simply concerned with the performance of masculinity, but also a kind of femininity, representing both sides of the goddess. The combination of these two concepts is united in the *assinu*, whose logographic expression as mentioned previously is composed of the symbology (lú)ur-munus which translates literally to mean 'man-woman'.²⁷ Peled takes this as proof of the *assinu*'s role as the passive partner in homosexual anal sex. Indeed, there are omen texts which mention male engagement in sex with *assinu*, but these accompany references to male sexual engagement with individuals identified as their male peers.²⁸ Certainly, this implies a relationship of sexual 'otherness' that brings male sexual contact with *assinu* into similar context as male-male sexual interactions, but to consider these synonymous disregards the complicated gender status of the *assinu* and other cult attendants.

The term *kulu'u* and its precise relationship to the role of the *assinu* is of particular note in terms of the *assinu*'s ambiguous gender. As previously mentioned, the Neo-Assyrian text concerning the

²³ This is a combination of translations from Vedeler 2008, p. 466 and Sjöberg 1976, p. 224 to ensure accuracy.

²⁴ Halloran 2006, p. 136; Bullough 1971, p. 192.

²⁵ Vedeler 2008, pp. 465–466.

²⁶ Peled 2014, p. 285.

²⁷ Peled 2014, p. 292.

²⁸ Nissinen 2010, p. 75.

myth of Inanna/Ištar's descent references the *assinu* and the *kulu'u* both. Although Peled has asserted that these figures are not interchangeable, denying the interrelationship between the status of the *kulu'u* and the *assinu*, this is largely predicated on the assumption that the *assinu* is a male homosexual figure. However, it seems evident based on the material previously discussed that these individuals were not simply passive men, rather, they defied stringent gender categorisation altogether. Furthermore, a Neo-Assyrian lexical manuscript equates the *kulu'u* with the *assinu* by virtue of its relationship to the 'man-woman' logograph.²⁹ This suggests that both terms carry a similar connotation of bi-genderism or of being between genders by virtue of their combination. This would support the notion that these individuals were indeed castrated, as this would physically demarcate them from the bearded male. Indeed, the application of *kulu'u*, while certainly carrying the pejorative connotation Peled underscores, suggests that the *kulu'u* (and by association, *assinu*) existed in opposition to the typical Assyrian man.³⁰ In a political correspondence of the twelfth century, the Assyrian King Mutakkil-Nusku insults his brother, Ninurta-tukulti-Aššur, by referring to him as "a *kulu'u*, not a man!"³¹ The relationship this kind of polarisation establishes between *kulu'u* and man is undeniable. This not only strengthens the relationship between the concept of the *assinu* and the *kulu'u* but suggests that the *assinu* was equally in opposition to man; that is, both the *assinu* and the *kulu'u* are non-man. While one should not necessarily consider the *kulu'u* a synonym for the *assinu*, there is no denying that the two terms carry the same gendered (or in this case, gender 'queering') connotation.

What is more, the *Šumma ālu ina mēlê šakin* omen texts make reference to the *assinu* in terms of failure of male sexual gratification. The omen reads: "If a man starts trembling while... for sexual potency, and like an *assinu* fails to achieve sexual climax."³² Here again, the figure of the *assinu* (and thereby other individuals of their nature) are discussed in terms of negative opposition to the potency of man. This divorce enacted between the figure of the *assinu* and the *kulu'u* and that of the male gender implies that these are not simply 'effeminate' men, but non-men. Furthermore, the failure to achieve sexual gratification may refer to the anatomical reality experienced by castrated individuals: failure to ejaculate. A figural representation of the *kalû* (similar if not identical to the *assinu*) from the Neo-Babylonian period, much like that of the earlier *gala*, certainly suggests a visual continuity between past and present attendants that more than likely implies castration (Fig. 4). Here again we see the lack of a beard, a physical symptom of castration, used to separate the attendant from his male bearded counterpart. The most notably iconographic change is that the castrated individual is no longer consigned to the context of performance. However, images of beardless individuals — commonly identified in line with contemporary documents as being eunuchs — appear with frequency in several contexts from the Late Assyrian empire, particularly in palace reliefs from Nimrud.³³

In establishing a continued tradition of castration in Mesopotamian society, particularly one that held religious and performative significance, we gain a useful tool for the analysis of Aegean iconography. Certainly, other aspects of Minoan figural representation suggest a fluid understanding

²⁹ Peled 2015, p. 753.

³⁰ See Peled 2015 (pp. 751–764) to read an exploration of the negative connotations attached to cult attendant titles.

³¹ Peled 2015, p. 755; see also George 2006, p. 175.

³² Leick 1994, p. 160.

³³ Curtis and Reade 1995, p. 55.



Fig. 4. A Neo-Babylonian *kudurru* (stele) from Uruk depicting King Marduk zakir shumi and a priest (Thureau-Dangin 1919, pl. 1).

of gender that would allow for the possibility of religious castration. Recent scholarship has highlighted the lack of rigidity in monumental artistic depictions in Minoan society.³⁴ A study conducted by Cadogan on baetyls (aniconic rock-deities), coined the term ‘meta-gender’ in order to examine aspects of Minoan culture that did not fit within the construct of masculine-feminine dichotomies.³⁵ This term, like ‘third-gender’ or ‘non-binary’, assists in explanations of images which diverge from the ‘binary’ canon of Minoan gender representation. Aside from Cadogan’s study, Sam Crooks has extensively studied the genderless and ‘queerness’ of glyptic representations of Minoan baetyl worship.³⁶ In addition, Erin McGowan’s study of Minoan glyptic images states that “there are glyptic images which elicit different associations under different physical and conceptual

³⁴ Again, see Hitchcock 2009; Nikolaidou 2012; McGowan 2011; Chapin 2012.

³⁵ Cadogan, G., “Gender Metaphors of Social Stratigraphy in Pre-Linear B Crete,” in *FYLO: Engendering Prehistoric “Stratigraphies” in the Aegean and the Mediterranean. Proceedings of an International Conference, University of Crete, Rethymno, 2–5 June 2005* (Aegaeum 30), edited by K. Kopaka, pp. 225–232. Liège: University of Liège, 2009, as referenced by Hitchcock and Nikolaidou 2013, p. 515.

³⁶ Crooks 2013, p. 44.

conditions.”³⁷ This is an analysis that can be applied with great success to representations of the Minoan genius (or Minoan demon). Although glyptic representations, which constitute some of the richest repositories of Minoan motifs, are subject to slightly different conventions than monumental art, the use of gender-liminal creatures, such as the Minoan genius, provide a strong basis for McGowan’s argument concerning the “associations” of certain glyptic representations.

Furthermore, the hybridised form of the genius is another example of the Aegean borrowing from a foreign devotional tradition; in this case, the iconography is derivative of the Egyptian Goddess, Taweret.³⁸ Many archaeologists, particularly S. Chryssoulaki and Fritz Blalkolmer, have posited that the genius is a predominantly masculine — if not simply male — figure.³⁹ These conclusions are drawn from the genius’ association with hunting scenes, and the appearance of the genius alongside men.⁴⁰ Nevertheless, the genius is a somewhat anthropomorphised animal hybrid, which emphatically defies a stringent application of human gender constructs. Certainly masculine associations are present, as Louise Hitchcock underscores in her study of Minoan gender codes, but this only further emphasises Minoan comfortability with gender-bending, or transitioning between states of masculine and/or feminine depending on the activity of or cultic role that individual possesses.⁴¹ The use of the genius implies that gender is not perceived as a rigid category, but rather a label subject to change based on the activity or association of the figure. Ultimately, it is this aspect of Minoan representation that seems to indicate the figure’s final gender association. The gender cannot be delineated simply by identifying key characteristics but interpreting the combination of complex physical and devotional codes at play.

The combination of male clothing and female skin in the ‘Priest-King’ iconography is a potentially potent example of the gender transgression in Minoan artwork. Furthermore, the debate surrounding the gender of Evans’ Priest-King is the most enduring, and perhaps the most demonstrative of the ways in which the scholarship has poorly addressed ambiguities in the past. Although many scholars since Evans’ have acknowledged that the characteristics of the Priest-King demonstrate differing gender representations, an explanation was not forthcoming for many years. Analysis proposed by Jean Coulomb, Wolf-Dietrich Niemeier and M. A. S. Cameron have focused predominantly on identifying problems with Evans’ original reconstruction, proposing alternative identities for the Priest-King based on anatomical problems perceived in the restoration.⁴² Coulomb came to the conclusion that the figure must be a boxer, Niemeier a god and Cameron, intriguingly, designated it a bull-leaper, citing the evidence of the white-skinned leapers in the Taureador fresco.⁴³

More recently, scholarship has adapted to recognise a more diverse gender nexus than previously conceived. Nevertheless, this new generation of scholars must necessarily grapple with the same foundational problem as their predecessors: if we accept that there are divergences from the canon of representation as it was previously understood, where does this leave the greater typology?⁴⁴

³⁷ McGowan 2011, p. 74.

³⁸ Kuch 2017, pp. 45, 47.

³⁹ Chryssoulaki 1999, p. 115; Blalkolmer 2015, p. 198.

⁴⁰ Chryssoulaki 1999, p. 115.

⁴¹ Hitchcock 2009, p. 99.

⁴² Shaw 2004, pp. 70, 77.

⁴³ Shaw 2004, pp. 70, 77.

⁴⁴ This question is also raised by Chapin, see Chapin 2012, pp. 297–298.

In answer, there is a second, more pertinent question. If we accept that the appropriation of the Minoan genius and the 'worship' glyptic of baetyls establish a precedent for crossing the accepted gender boundaries, could these fresco images, and this comfortability more generally, not simply represent the existence of an additional category? Motifs function in a representational sense. Skin and clothing, rather than constituting strict categories in all cases, are likely mere visual shorthand which enables the image, at a glance, to be read. The disturbance of an evident dichotomy is no doubt intentional, and the fact that scholarship has regarded intentional disturbance as a problem shows a disconnection between scholars and the artworks themselves. It is important to remember that these images would have made sense to their intended audience, which necessitated some level of overall consistency to be visually legible. Rather than necessarily conflating the binary categories, artists intentionally combined characteristics of both the male and female convention in order to render a third-gender or transgender individual. By utilising known conventions and combining them, the figure is not confusing the canon, but creating an additional category, thereby making these images immediately legible as a third-gendered individual. This combined signification mimics the Mesopotamian example closely; the concurrent rendering of feminine-typified anatomy with masculine guise in the Mesopotamian case, or vice-versa as can be seen in the Aegean, constitutes the creation of a separate category, rather than an artistic error.

With the establishment of a further gender precedent in mind, the Priest-King, then, rather than constituting a break from the norm, is a constituent of an expanded norm, expressed by the intentional utilisation of feminine white skin and masculine clothing. Whether the original figure itself was a boxer, leaper, or 'priest' as originally posited, the meaning remains much the same. Rather than being defined by anatomical sex, the gender is constituted by the activity. The male features expressed on a white-skinned body may represent a transition from female to male by way of participation in a sport, be it boxing or bull-leaping. Similarly, white skin applied to a masculine body, may represent the transition of a phallic body into the feminine, or the third gender. Whether this was instituted physically in all cases remains open to speculation. Nevertheless, the performativity of gender, a theory which Judith Butler first strongly espoused, is a useful concept when examining these frescoes, particularly regarding the Priest-King. To borrow somewhat from Alberti's application of Butler's theory: "the sexed body, therefore, is brought into being... when a particular type of garment is combined with a body within a specific context of representation..."⁴⁵ In this case, however, the costume as constituted by Alberti's use of 'garment' extends to any aspect of the image with a specific gender connotation, particularly skin colour. If we can roughly equate religious activity with feminine participation, without delving into the dangerous revisionism of the 'mother-goddess' school of thought, then it is possible that the male priest takes on the feminine guise in ritual activity, as represented by the white skin. Given the Minoan willingness to hybridise animals (consider the genius), it is not beyond the realm of possibility that hybridity of gender represented an equally powerful ritualistic or religious tool.

Given the gender-liminality of such figures as the Priest-King and the Minoan genius, and the emphatic borrowing of cultural codes which can be variously connected to both Egypt and the Near East, it does not seem beyond the realm of possibility that Mesopotamian conceptions of gender and performance influenced Minoan musical tradition as well. If we accept the hypothesis

⁴⁵ Alberti 2001, p. 200.

that Minoan culture already had a category between male and female, the castrated, third-gender performer represented by the Mesopotamian eunuchs offer the most useful vehicle of comparison. Although the definitions and roles of these functionaries vary, they are, as mentioned earlier, most often concerned with the performing arts (namely acting and music) and cultic performance.⁴⁶ Furthermore, the Near East is believed by many to have had a consistent cultural influence on the Minoan and Mycenaean world since the Old Babylonian period.⁴⁷ Significantly, Minoan Crete is among the regions mentioned in the cuneiform tablets unearthed at Mari from the eighteenth century BCE.⁴⁸ In addition, there is very clear iconographic influence that can be traced through the use of the master of animals pose, which would be subsumed into the most famous Minoan example, the mistress of animals pose. One can reasonably assume that the Mesopotamian castration practice reached the Aegean and provided a tradition to parallel, fitting well within an established gender-liminal practice.

In light of the Mesopotamian tradition, J. G. Younger, who has analysed Mycenaean representations of musicians, briefly suggested that the singers depicted on the Minoan 'Harvester Vase' (Figs. 5–6) are eunuchs.⁴⁹ Indeed, the singers on the Harvester Vase (led by a male sistrum player) are significantly plumper than the other figures depicted.⁵⁰ This certainly conforms to the conventions present in the Mesopotamian examples; non-typical hair, plumpness of figure, often but not always seen in the act of performance itself. The hairstyles in particular appear suggestive of a longer cut more in line with Mesopotamian examples, comparable in the sweeping backward style of the Mari statue and the terracotta plaque, without the typical snaking locks apparent in other male Aegean examples. This certainly suggests that the physical changes exhibited in Mesopotamian performers are similarly present in Aegean performers. Their gender-liminal status is further suggested by the presence of the sistrum. On the Harvester Vase, the sistrum is wielded by a male individual. This contradicts the original Egyptian tradition from which it was borrowed wherein the sistrum was an exclusively female instrument, with accompanying song often performed by women.⁵¹ Indeed, in Egyptian society the delineation between male and female music often necessitated a separate female and male spatial register.⁵² There is no gender division visible on the Harvester Vase, instead the three singers stringently defy strict characterisation as either, while the sistrum is played by an emphatically male individual. Archaeological remains of sistra, complete and fragmentary, found in Hagia Triada alongside the Harvester Vase and in other regions on Crete, certainly supports the presence of these instruments.⁵³ Here again we see Aegean, particularly Minoan, comfortability with transition between masculine and feminine tradition; indeed, the depiction of these castrated individuals may provide evidence of a sanctioned transference of typically female phenomena to previously masculine individuals.

⁴⁶ Burgh 2004, p. 130.

⁴⁷ David 2014, p. 10; Younger 1998, p. 59; Hutchinson 1963, pp. 105, 146.

⁴⁸ Foster 2018, p. 344; Alberti 2012, pp. 119–120.

⁴⁹ Younger 2007, p. 74; Rehak 1996, p. 40.

⁵⁰ The Harvester Vase is believed to predate Mycenaean hegemony (c. 1550 BCE), however it comes from the same blended cultural and musical tradition as the sarcophagus also found in Hagia Triada.

⁵¹ Younger 1998, p. 55.

⁵² Darnell 2016, p. 36.

⁵³ Soles 2020, p. 135.



Fig. 5. The Harvester Vase. A black steatite rhyton from the Neo-Palatial period depicting an agrarian scene: there are several farmers carrying farming implements, as well as one musician carrying a Minoan-Egyptian instrument known as a sistrum (Forsdyke 1954, fig. a).



Fig. 6. The Harvester Vase. In this view the plump singers with atypical hairstyle can be plainly seen (Forsdyke 1954, pp. 1–9, figs. a, b, c).

This emulates the Mesopotamian precedent mentioned earlier, broadening the idea that a particular performative genderlect could underscore a mixing of genders or genderlessness. In essence, a female language or action when employed by a masculine individual underscores the lack of binary gender. In much the same way that Ištar's cult performers may have sung in the feminine coded Emesal, the use of the sistrum by a man accompanied by castrated performers may have suggested a transcendence of strictly masculine or feminine performance. This transformation of Egyptian tradition is also in line with the masculinised use of Tawaret demonstrated by the Minoan genius.

The Harvester Vase is not the only example of gender-divergent musical performers in the Aegean. The unusual figure of the Mycenaean musician has occupied a rather small position in the literature on Mycenaean culture in general. This is perhaps because of the mistaken enforcement of the strict binary discussed earlier, particularly where Mycenaean culture is concerned.



Fig. 7. The Hagia Triada Sarcophagus. This image shows the Sarcophagus prior to cleaning and restoration (Forsdyke 1952, pl 13).



Fig. 8. The Hagia Triada Sarcophagus. This image shows the sarcophagus after cleaning and restoration. Although the gendered coding of the skin allows the identification of three male and two female individuals, there is a third red-skinned individual in feminine sacrificial garb playing a Mycenaean phorminx (or lyre) (Levi 1956).

One of the clearest examples of the musician in action comes from the Hagia Triada sarcophagus (Figs. 7–8). Although this procession scene has an emphatically Mycenaean touch, it is clear that the artistic conventions are borrowed directly from Minoan (and Near Eastern) iconography. The scene unfolding is evidently one of ritualistic offering: on one side, two women advance towards the sacred double axes to pour libations, while two men advance in the opposite direction carrying

sacrifices to placate an idol. In this scene, the artistic convention of white skin for women and red for men as well as the direction of travel seems to demarcate the gender separation. However, directly between these two groups stands a musician playing the phorminx (a kind of lyre). Brendan Burke notably interprets this figure as male.⁵⁴ Burke's adherence to structuralist binarist interpretation of gender opposition limits his capacity to interpret the combination of male-conventional red skin, women's dress, and women's direction of travel for the musician. This understanding similarly limits Younger's analysis, resulting in a masculinising interpretation of Mycenaean musical tradition.⁵⁵ As discussed earlier in analysis of Minoan monumental figural art, the intentional rendering of combined feminine and masculine clothing, skin and activity most likely indicated a gender liminality. Given that the Myceneans were the primary inheritors of the Minoan cultural nexus, which had been largely influenced by the Near Eastern context, it seems highly likely that the phorminx bard constitutes evidence of a continuation in the castration of musicians for performative and devotional function.

While the relatively uniform stylisation of the figures betrays little in the way of potential physical difference, there is reason to suppose that the artist intended to underscore the 'otherness' of the phorminx bard. There are marked differences between the phorminx bard and the other male-typical figures. The garment worn by the musician as well as their posing most closely resembles the women whose direction of travel the bard follows. In addition, the perspective of the male figures following the opposite direction of travel is slightly different, allowing a clearer view of the breadth of their shoulders, while the musicians stance is emphatically side-on, mimicking the women again. This combination of male-coded skin, feminine dress and alignment seems to imply some transgression of the traditional gendered delineation. The choice of feminine garb may be yet another adaptation of Mesopotamian tradition; as mentioned earlier, many of the cult attendants donned feminine clothing for ritualistic purposes, even going so far as to adopt a feminine manner, which may explain the phorminx bard's feminine alignment despite the red skin suggesting an otherwise masculine origin. These combined codes could indicate a physical change that disturbs the categorisation of the bard as either emphatically male or emphatically female. While Mesopotamian performing eunuchs appeared primarily as singers, accompanied by phorminx (or lyre) playing musicians, it is likely that this role was simply subsumed in Mycenaean culture by the single phorminx bard. Thus, the practical as well as devotional function of castration presents a likely explanation for the combined coding of the phorminx bard, who would be physically distinct from both male and female worshippers.

Though extant depictions of Mycenaean musicians are rare, a LH III B fresco rendering of a Mycenaean phorminx bard from Pylos (**Fig. 9**), shows some visual continuity with depictions of Mesopotamian performing eunuchs.⁵⁶ It has been suggested to me by Louise Hitchcock that this fresco may depict a person of colour, therefore negating the significance of the colour of skin as a gender marker. However, fragmentary fresco work depicting people of colour generally demonstrate a more marked departure from the usual white-red convention — one might refer to the 'captain of the blacks' fresco, so unfortunately named by Evans, to see how depictions of people

⁵⁴ Burke 2005, p. 109; Younger 2007, p. 73.

⁵⁵ Younger 1998, p. 58.

⁵⁶ For dating, see Chapin 2005, p. 123.



Fig. 9. The Pylos Bard Fresco. This fresco, named “the bard at the banquet” by Mabel Lang in 1969, depicts a figure identified commonly as a bard painted a deep ochre, holding a white double-duck-headed phorminx or lyre. The recreation utilised here was completed by Piet de Jong, an English illustrator who worked closely with Sir Arthur Evans (Blegen 1956, pl. 41).

of colour generally differed substantially from depictions of Aegean individuals. While the skin colour of the bard appears somewhat darker than other red-skinned individuals in Cretan fresco, the hairstyle nevertheless is consistent with Aegean adult styles. Indeed, whether the individual is Aegean or not has less relevance, there is a clear blending of gendered Aegean artistic signals. The unusual dress worn by the Pylos bard further suggests that these individuals were intentionally rendered with a combination of masculine-coded darker skin and a more feminine-coded religious garb in order to highlight their ‘otherness’. As Younger has underscored, this bard is unique in that they are depicted seated.⁵⁷ This more passive stance is more often associated with the rendering of women in Mycenaean fresco.⁵⁸ Although accompanied by a feasting fresco, the bard is rendered on a much larger scale, elevated above the festivities, effectively separating them from the masculine feasting sphere. The duck head finials on the Phorminx also provide an additional feminine clue. As Younger has emphasised, Minoan and Mycenaean art typically position ducks in the sphere of female influence.⁵⁹ Although he neglects to interpret this symbolism,

⁵⁷ Younger 1998, pp. 58–59.

⁵⁸ Younger 1998, p. 59.

⁵⁹ Younger 1998, p. 59.

it certainly suggests that these instruments have some female association. Echoing the emulation of feminine guise by early Mesopotamian cultic individuals, these duck decorative motifs may provide an indication that the playing of the phorminx involved a gender transformation or called upon an emphatically feminine energy. Contrary to Younger's argument concerning the femineity of music, one might understand that from Mesopotamian to Minoan-Mycenean Aegean society, the act of performance necessitated a defiance of strict categorisation that could be physically achieved by castration. There appears to be a consistent application of combined or transformed gender codes in order to underscore a real rather than simply artistic gender liminality of musical performers. Given the clear cultural exchange between Aegean and Mesopotamian culture, as well as the evident iconographic similarities, it is not unlikely that both Minoan and Mycenean musicians were castrated.

Mesopotamian eunuchs establish a strong historical precedent for the castration of individuals for performative as well as devotional function, which appears to mimic both the instance represented on the Hagia Triada sarcophagus and the Harvester Vase. Furthermore, the artistic conventions surrounding the Mesopotamian depiction of eunuchs recalls aspects of the Aegean examples. The singers on the Harvester Vase are similar both in their swollen stature and in the styling of their long hair. Although similarities are less evident in the examples of musicians recorded on the sarcophagus and the fresco, the long almost feminine-typical hair, coupled with the androgynous dress, are enough to assume that, given the similar function played by phorminx bards, these individuals may also have been eunuchs.

Conclusion

It seems evident that both the Aegean and the Mesopotamian societies likely had a developed understanding of gender that involved the sanctioned practice of complex gender presentation, particularly where musical and cultic practices coincided. Although there is a great deal more conclusive evidence available in the Mesopotamian case, it is nonetheless likely that the Aegean, already open to the influence of their Near Eastern neighbours, adopted similar ritual traditions. The institution of castration, first in the early cult of Ištar/Inanna, and later in Aegean ritualistic milieu, points not only to a further blending of cultural practices but also suggests a rich tradition for ritual castration in the ancient world. The physical similarities between the Aegean musicians and their Mesopotamian counterparts, differing only in the slight variation of media and artistic styles, certainly suggest a similarly close relationship between complex gender presentation and performance that could strongly indicate castration. The Harvester Vase, while emphatically Minoan in character, provides a sound basis for analysis of gender diverse transference from the Near East to the Aegean. The resemblance between the castrated individual on the terracotta plaque and the singers on the obverse of the vase largely transcends the differences between media. With the Harvester Vase in mind, it seems all the more likely that the phorminx bard of the Hagia Triada sarcophagus represents a castrated musical performer. The blending of Minoan and wider Near Eastern influence that would influence the development of Mycenean society, as well as the combined masculine-feminine conventions again present in a musical-ritual realm, would suggest that the phorminx bard was indeed another castrated performer.

Given this cultural exchange and apparent artistic similarity, it is no longer sufficient to analyse Minoan or Mycenaean gender norms in line with traditional conceptions of gender binarism. Instead, we must turn toward the Mesopotamian and wider Near Eastern exemplars which constitute a strong comparative tool for the decipherment of the somewhat more fragmentary Aegean evidence.

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Procurement, least-cost path analysis and technological studies on obsidian assemblages from the Neolithic to the Early Bronze Age at Mentesh Tepe (Middle Kura Valley, Azerbaijan)

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Abstract

Mentesh Tepe, in the Middle Kura Valley, Azerbaijan, hosts a regionally unique series of Neolithic, Chalcolithic and Early Bronze Age cultural deposits. The site was occupied during three main periods. The earliest, Mentesh Tepe I, goes back to the Neolithic period (c. 5880–5536 cal. BC). Two separate phases, Mentesh II (4800–4500 cal. BC) and III (4300–4050 cal. BC), belonging to the Chalcolithic period, were identified. Finally, during the Early Bronze Age, Mentesh IV was also divided into two different horizons, one related to the Kura-Araxes I phase (3500–2900 cal. BC) and the other to the Martkopi phase of the Early Kurgan Culture (around the mid-third millennium BC). In all periods, obsidian was the most commonly used lithic material. In the present paper, we use provenance and the least-cost path analyses to examine the obsidian supply and technological analysis to define the production methods of artefacts. A large number of distinct sources were identified, as well as evidence for drastic change in the raw material procurement during the Chalcolithic period. By contrast, the production practices and the specific skills required for knapping obsidian blades using the pressure technique testify to continuity between the Neolithic and Chalcolithic periods. This technology disappeared in the Early Bronze Age, marked by flake productions with less technical input.

Introduction

The abundance of obsidian deposits in the Lesser Caucasus has made this material the primary source for tool making in the surrounding area until the Bronze Age. Publications dealing with the obsidian industries at a number of sites primarily consider the different sources that were exploited and deal with the Neolithic period, because of the high number of excavated sites dated to the sixth millennium. Only partial data on one or another aspect of these industries are usually mentioned in the literature. One site, Mentesh Tepe (Azerbaijan, Fig. 11), located in the Middle Kura Valley, stands apart from all others because of its long-lasting occupation from the Neolithic in the early sixth millennium to the Early Bronze Age in the mid-third, albeit with important hiatuses. On this site, it is therefore possible to follow the evolution of lithic industries and sources used during the Neolithic, Chalcolithic and Bronze Ages. Our aim in this article is to present the first integrated

approach to the obsidian industry for the southern Caucasus. The assemblages are studied by looking at the main steps of the *chaînes opératoires* (manufacturing processes) and analysing the exploited obsidian sources (obsidian sourcing), the pathways for acquisition of raw material, the production of blanks (technology) and the manufacture of formal tools (typology). This research raises questions regarding the diffusion of raw materials in relation to transhumance and exchange, the production of artefacts and the degree of specialisation of craftsmen, the cultural background of the groups engaged in tool manufacture and use, and possible micro-regional differences in technical practices.

Site description

Mentesh Tepe (Azerbaijan) is a small settlement located on the lower part of an alluvial fan of the Zeyem Chaj, a tributary of the Kura River. It was excavated between 2008 and 2015. It is one of the rare examples of a multi-period site in the southern Caucasus with three main periods of occupation: the Neolithic, Chalcolithic and Early Bronze Age.

Neolithic occupation (Mentesh I) dates to the first half of the sixth millennium BCE (c. 5880–5536 cal BCE) and its cultural assemblage shows similarities with the Shomu-Shulaveri culture.¹ Two main architectural phases were identified for this period, characterised by approximately circular constructions of different sizes built with plano-convex mudbricks and/or cob. The structures of the earliest phase 1 are better preserved than those of phase 2, which seem to have been left in the open air for some time. A large amorphous anthropic pit (phase 1) in the vicinity of the constructions contained most of the archaeological material recovered from this period, namely ceramic potsherds, bone or horn tools, lithic implements, fauna and paleo-botanical remains. Pottery is not abundant and, in phase 1, stands apart from most of the usual Shomu-Shulaveri ceramics because of its temper, made exclusively of poaceae seeds.² The lithic assemblage is homogeneous from one Neolithic phase to the other.³ Obsidian is the main exploited raw material (85 per cent of the total collection), followed by chalcedony (12 per cent), while flint and jasper are marginal. Regarding obsidian, the production of blades using pressure flaking predominates and both flakes and flake cores are somewhat rare. Blanks used without any retouch are abundant on obsidian and chalcedony. Pieces with lateral retouch and burins form the main groups of obsidian tools, followed by truncations. Denticulates, notches, borers and scrapers are infrequent. There are four trapezes. The identified tool types made of chalcedony are pieces with lateral retouch and sickle elements.

The Chalcolithic period is subdivided into two main phases separated by a short gap. The earliest is characterised by ephemeral architecture dating to the first half of the fifth millennium BCE (c. 4800–4500 cal BCE, Mentesh II) and yielded little material. The latest phase revealed well-planned rectangular architecture made of flat moulded mud-bricks (c. 4300–4050 cal BCE, Mentesh III).⁴ Its abundant pottery is all handmade, mostly chaff-tempered, often decorated, and some of its features testify to relations with the North Mesopotamian area.⁵ Cooking pots,

¹ Lyonnet *et al.* 2012a, 2012b, 2016, 2017.

² Lyonnet 2017a, 2017b.

³ Guilbeau *et al.* 2017.

⁴ Lyonnet *et al.* 2017.

⁵ Lyonnet 2012, 2017a.

however, have local roots⁶ and are partly obsidian-tempered.⁷ Concerning the lithic assemblage, obsidian is overwhelmingly predominant (90.7 per cent of all chipped stone) but artefacts made of a grey-beige opaque flint are also attested (6.2 per cent). The industry is dominated by unipolar blade production. Blade dimensions vary and their morphology is even more regular than Neolithic examples; they were detached by means of the pressure technique. Obsidian blanks are often used without any retouch, while flint tools are mostly deeply retouched. On both raw materials, retouch using pressure was identified.

The Early Bronze Age (Mentesh IV) is mainly represented by two large kurgan burials, the earliest dating to the second half of the fourth millennium (Kura-Araxes period I, *c.* 3500–2900 cal BCE) and the latest to the mid-third millennium (Martkopi period, *c.* 2500–2400 cal BCE).⁸ Several pits, possibly related to ephemeral occupation, date to the period in between.

Obsidian sourcing

Method

Two analytical methods have been used at the IRAMAT / Centre Ernest-Babelon (Orléans) to source the obsidian artefacts from Mentesh Tepe. One is based on Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) and the other on a non-destructive X-Ray Fluorescence approach (XRF). Among the 695 studied artefacts, 42 were analysed only by LA-ICP-MS, 324 were analysed using both methods (LA-ICP-MS and XRF) and 330 were analysed by XRF only. Seventy-eight LA-ICP-MS analyses were also carried out on obsidian chips used as temper for pottery.⁹

Laser Ablation Inductively Coupled Plasma Mass Spectrometry analysis (LA-ICP-MS)

Analyses of obsidian objects were carried out in our laboratory with an Element XR mass spectrometer from Thermofisher Instrument.¹⁰ This system offers the advantage of being equipped with a three-stage detector: a dual mode (counting and analogue) secondary electron multiplier (SEM) with a linear dynamic range of over nine orders of magnitude, associated with a single Faraday collector which permits an increase in the linear dynamic range of an additional three orders of magnitude. This feature is particularly important for laser ablation analysis of lithic samples, since it is possible to analyse major, minor, and trace elements in a single run, regardless of their concentrations and their isotopic abundance.

The measurements were carried out in peak jump acquisition mode, taking four points per peak for counting and analogue detection modes and ten points per peak for Faraday detection. Automatic detection mode was used for most of the elements; only sodium, silicon, aluminium and potassium were systematically detected with the Faraday detector. Silicon was measured on

⁶ Lyonnet 2018.

⁷ Palumbi *et al.* 2018.

⁸ Lyonnet 2014; Pecqueur *et al.* 2017.

⁹ Palumbi *et al.* 2014, 2018.

¹⁰ Gratuze 1999; Chataigner and Gratuze 2014a, 2014b.

the ^{28}Si isotope and used as an internal standard. A total of 38 elements were recorded. With our analytical parameters, the scanning time necessary to measure the selected isotopes was about two seconds. As most of the encountered isobaric interferences could be resolved by working on non-interfered isotopes, all measurements were carried out in low resolution mode.

Nine campaigns of analysis were carried out: seven for the artefacts and two for the obsidian temper in ceramics. For four of them (303 artefacts), we used a VG UV-laser, generated by a Nd YAG pulsed beam and operating at a 266 nm wavelength, 3–4 mJ power and 7 Hz frequency. An argon stream (1.15–1.35 l/min) carried the ablated material to the plasma torch. For the five last campaigns (63 artefacts and 78 obsidian chips used as ceramic temper), a Resonetics RESolution M50e ablation device was used. This is an excimer laser produced by argon fluoride at a 193 nm wavelength and operated at 4 mJ and 10 Hz. A dual gas system with helium (0.6 l/min) released at the base of the chamber and argon at the head of the chamber (1.1 l/min) carried the ablated material to the plasma torch. For all campaigns, ablation time was set at 70 seconds: 20 s pre-ablation, so that potential surface contamination could be removed and 50 s collection time. Spot sizes were set to 100 μm . Blanks were run every ten samples. For the first three campaigns, three different areas were analysed per sample to check for heterogeneity. As the relative standard deviation between the three areas was below five per cent for most of the elements, only one area was sampled during the last three campaigns. However, when element spikes due to the presence of inclusions were observed during analysis, results were discarded and a new site selected. The obsidian chips used as ceramic temper were analysed with an analytical protocol specifically developed for thin mineral inclusions.¹¹

Calibration was done by using three reference standard glass materials: NIST610 and Corning glass B and D, which were run periodically to correct for instrumental drift. ^{28}Si was used as an internal standard to normalise the measured signal for each element and final percentage composition was calculated from the response coefficient (k) defined from the reference material.¹² Standard glass materials NIST612 were analysed independently of calibration to provide comparative data and to check for accuracy and precision. For the major elements, the analysed values were within five per cent for all elements. Most trace elements were within ten per cent. Coefficients of variation for all major elements were less than five per cent. For the minor and trace elements, most were less than five per cent and all less than ten per cent.

X-Ray Fluorescence Analysis (XRF)

During the second campaign of analyses, a systematic qualitative X-Ray Fluorescence approach (XRF) was developed and all artefacts were first characterised using this technique. X-rays were generated with a tungsten tube operating at 45 kV and 0.8 mA. Analytical parameters were as follows: an acquisition time of 1200 s, no beam filter, a beam collimator diameter of 1.5 mm, and an energy domain for elemental analysis of 0–50 keV. The instrument used was the ARTAX portable m-XRF Spectrometer from Bruker. The net signals measured for 11 minor and trace elements present in obsidian (K, Ca, Ti, Mn, Fe, Rb, Sr, Y, Zr, Nb and Ba) were systematically recorded.

¹¹ Palumbi *et al.* 2014.

¹² Gratuze 1999.

Geological samples from sources in Armenia, Georgia and Turkey were analysed jointly with archaeological ones. The net signals measured for each element were plotted using simple binary diagrams after normalisation by the $L\alpha$ tungsten X-ray. Our experimental set-up does not allow direct quantitative analysis of obsidian samples but only gives a picture of the selected X-rays.

XRF was used during a first stage as a semi-quantitative technique and, during a second stage, calibration was carried out using the LA-ICP-MS data obtained on the artefacts analysed with both methods. It should be recalled, however, that results obtained with this technique are very sensitive to surface conditions such as alteration, encrustations, roughness, and irregularities, as well as to the thickness of the artefact; the minimum thickness to have reliable measurements is about 3 mm. XRF data (normalised raw counts) allow separation of the objects into different groups. According to the results obtained on geological samples with our analytical protocol, it was observed that some sources can undoubtedly be directly identified using XRF measurements, while others show a systematic overlap, which may prevent their safe identification. For chemically well-identified obsidian sources, the attribution was confirmed by analysing with LA-ICP-MS a limited number of artefacts selected among the different groups defined by XRF results. For sources that presented a systematic overlap or for data more difficult to interpret due to surface conditions or artefact thickness, LA-ICP-MS analysis was systematically used.

Only the results obtained using LA-ICP-MS will be given in the tables of results below (Tables 3–4; see also supplementary table at <https://hal.archives-ouvertes.fr/hal-03319307>) and plotted on the binary diagrams.

Results

During a first stage, we analysed the results obtained independently of periodisation. The barium and zirconium contents and the yttrium/zirconium, niobium/zirconium, barium/strontium and barium/zirconium ratios led to a distribution of the obsidian artefacts and inclusions (ceramic temper) into ten main compositional groups (Figs. 1–6, Tables 1–4). Recently published studies concerning the sources of obsidian for the South Caucasus and northeastern Turkey¹³ have shown that these groups correspond to obsidian sources from the following volcanoes: Arteni (Arteni 3 — Pokr Arteni and Aragats flow, 7 artefacts), Chikiani (3 sub-groups, 49 artefacts and 1 inclusion), Gegham (273 artefacts and 52 inclusions), Gutansar (25 artefacts and 2 inclusions), Hatis (4 artefacts), Khorapor (11 pebbles), Sarıkamış (5 sub-groups, 197 artefacts and 2 inclusions), Syunik (2 sub-groups, 17 artefacts and 18 inclusions), Tsaghkunyats (2 sub-groups, 109 artefacts and 3 inclusions) and Yağlıca Dağ (3 artefacts).

In some cases (Syunik, Sarıkamış, Chikiani, Arteni and Tsaghkunyats), results obtained by LA-ICP-MS allow a more precise attribution to particular outcrops on these volcanoes (Tables 1–4). In Tables 3–4, only the mean compositions and their standard deviations are given for each sub-group. Individual data collected using LA-ICP-MS for the artefacts and the inclusions are given as an Excel sheet that can be downloaded from <https://hal.archives-ouvertes.fr/hal-03319307>.

¹³ Chataigner and Gratuze 2014a, 2014b; Chataigner *et al.* 2014; Biagi *et al.* 2017.

TABLE 1. Distribution of the analysed obsidian artefacts according to their provenance (LA-ICP-MS and XRF).
Sub-groups are determined according to LA-ICP-MS data.

| Main groups | Gegham | Syunik | Sarıkamış | Chikiani | Tsaghkunyats | Gutansar | Arteni | Hatis | Khorapor | Yağlıca Dağ |
|--------------|--------|-----------------------------------|---|---|--|----------|----------|-------|----------|-------------|
| amount | 273 | 17 | 197 | 49 | 109 | 25 | 7 | 4 | 11 | 3 |
| % | 39,3 % | 2,4 % | 28,3 % | 7,1 % | 15,7 % | 3,6 % | 1,0 % | 0,6 % | 1,6 % | 0,4 % |
| Sub-groups | | Syunik 2: I Syunik 3: 16 | N 1: 54 N 2: 23 N 3: 15 N undet: 82 S 1: 11 S 2: 12 | C 1: 6 C 2: 29 C 3: 16 Undet 4 | Tsaghkunyats 1: 93 (Damlik: 28, Ttvakar: 7, undet.: 58) Tsaghkunyats 2: 16 | | Art.3: 7 | | | |
| Neolithic | 2 | | 89 | 13 | 56 | 1 | 2 | 1 | | 1 |
| Chalcolithic | 172 | 9 | 33 | 17 | 19 | 13 | 4 | 1 | 1 | |
| Undetermined | 99 | 8 | 75 | 19 | 34 | 11 | 1 | 2 | 10 | 2 |

TABLE 2. Distribution of the analysed obsidian inclusions in ceramics according to their provenance.

| Main groups | Gegham | Syunik | Sarıkamış | Chikiani 3 | Tsaghkunyats 1 | Gutansar |
|-------------|--------|-----------------------------|------------------|------------|----------------|----------|
| Amount | 52 | 18 | 2 | 1 | 3 | 2 |
| % | 66,7% | 23,1% | 2,6% | 1,3% | 3,8% | 2,6% |
| Sub-groups | | Syunik 2: 6 Syunik 3: 12 | N 1: 1 S 2: 1 | | Damlik: 3 | |

Except for some of the artefacts attributed to the Kars/Sarıkamış region (sub-group N 3B, three artefacts; S 1A, six artefacts, and S 1B, three artefacts), for which no geological reference with identical composition is available, the given attributions result from comparisons between the measured compositions of the tools with those from geological samples collected during surveys in the various volcanic zones of Turkey, Armenia and Georgia and analysed using the same methods.¹⁴

For the 12 artefacts attributed to the group Sarıkamış N 3B, S 1A and 1B, the similarity with an obsidian source from this area was obtained by comparing some of their trace element ratios (Figs. 7–10). From a geochemical point of view, the artefacts of the sub-group N 3B have lower titanium, iron, zirconium and rare earth element contents than those attributed to the Sarıkamış North area but remain within the general chemical domain defined by geological samples from the area (Figs. 7–10). Another artefact attributed to that sub-group was recently identified at Kiçik

¹⁴ Chataigner and Gratuze 2014a; Chataigner *et al.* 2014; Biagi *et al.* 2017.

Tepe.¹⁵ The composition of our sub-groups S 1A and 1B, comprising a total of nine artefacts, is included in the chemical domain defined by the obsidians originating from the Sarıkamış and Yağlıca Dağ outcrops.¹⁶ Their composition is close to that from the Sarıkamış South outcrops due to their comparable content in barium and strontium, the Sarıkamış North outcrops due to comparable content in zirconium and rare earths (Fig. 9) and Yağlıca Dağ due to comparable content in barium, strontium and zirconium (Fig. 8). It should be emphasised that such a chemical composition is not specific to Mentesh Tepe. Artefacts found at other sites in Azerbaijan (one at İsmayilbey and one at K    k Tepe) and in Armenia (one at Getahovit) have a similar composition.¹⁷

One should recall that the distinction between the zones of Sarıkamış North and South is more related to the geochemistry of the obsidian tools than to their geographic locations and, particularly, to their content in barium and zirconium. The obsidian tools from Sarıkamış North (N 1, N 2, N 3A) are characterised by a high zirconium content and a low barium one, whereas those from Sarıkamış South (S 1C and S 2) reveal a low zirconium content and a high barium one. The six artefacts from S 1A and, to a lesser extent, the three artefacts from S 1B have an intermediate composition (high contents of zirconium and barium), while the three artefacts from N 3B exhibit low contents of these elements. Until the volcanic Sarıkamış zone is surveyed in more detail, these twelve artefacts will be considered as originating from this area.

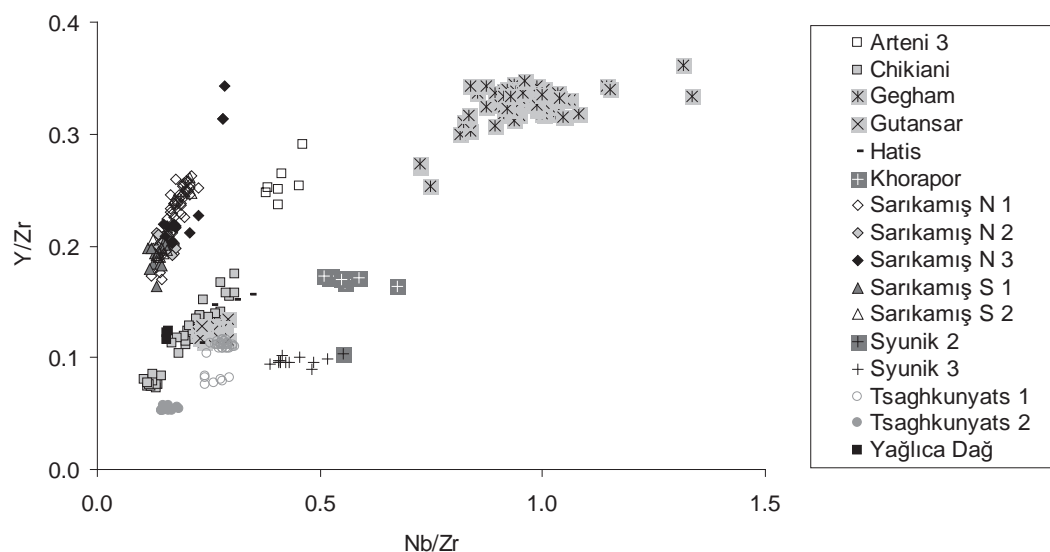


Fig. 1. Binary diagram of Y/Zr-Nb/Zr ratios for the obsidian artefacts from Mentesh Tepe analysed using LA-ICP-MS.

¹⁵ Palumbi *et al.* 2021.

¹⁶ Chataigner *et al.* 2014.

¹⁷ Unpublished data, Palumbi *et al.* 2021; Chataigner *et al.* 2020.

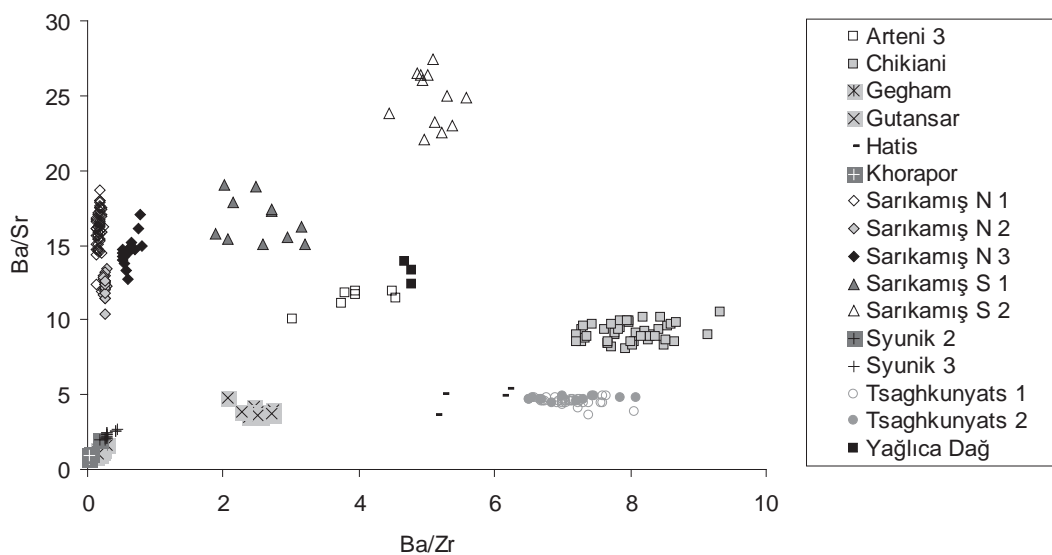


Fig. 2. Binary diagram of Ba/Sr-Ba/Zr ratios for the obsidian artefacts from Mentesh Tepe analysed using LA-ICP-MS.

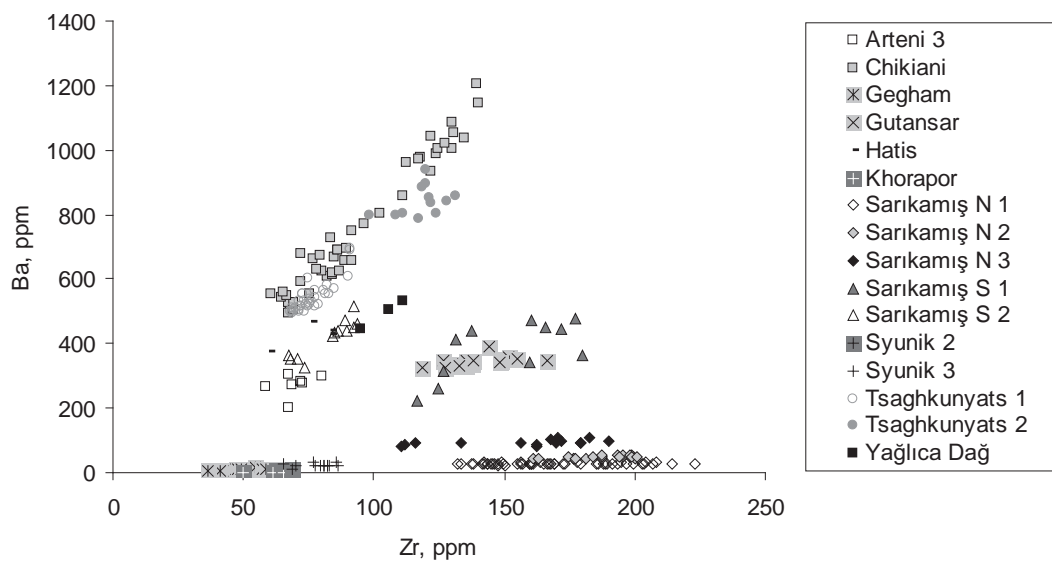


Fig. 3. Binary diagram of Ba-Zr contents for the obsidian artefacts from Mentesh Tepe analysed using LA-ICP-MS.

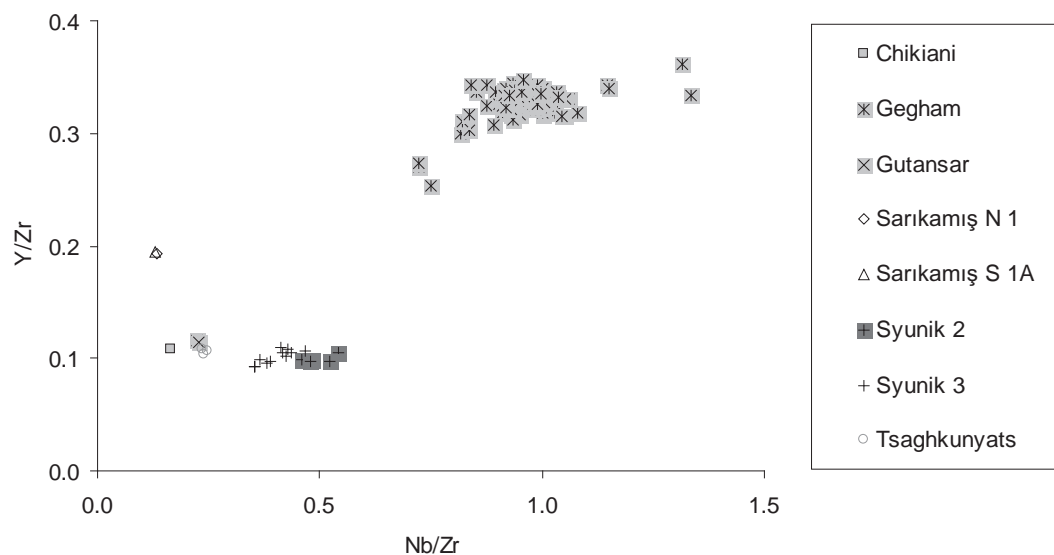


Fig. 4. Binary diagram of Y/Zr-Nb/Zr ratios for the obsidian inclusions in pottery from Mentesh Tepe.

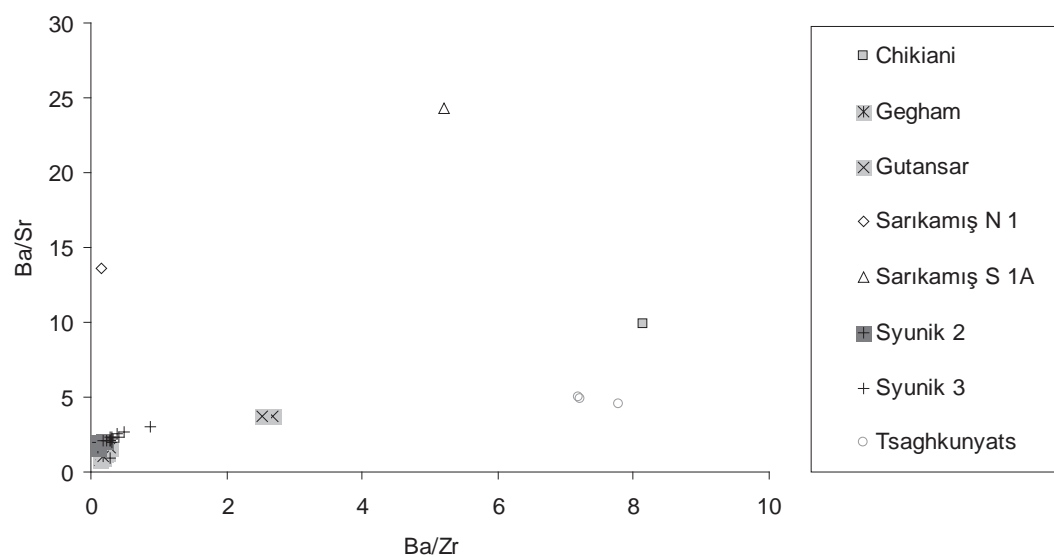


Fig. 5. Binary diagram of Ba/Sr-Ba/Zr ratios for the obsidian inclusions in pottery from Mentesh Tepe.

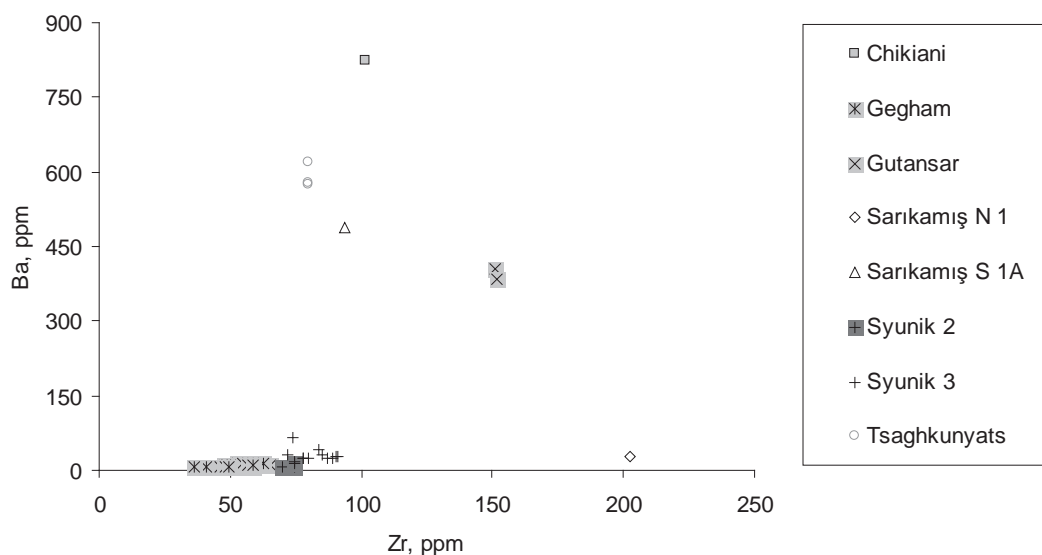


Fig. 6. Binary diagram of Ba-Zr contents for the obsidian inclusions in pottery from Mentesh Tepe.

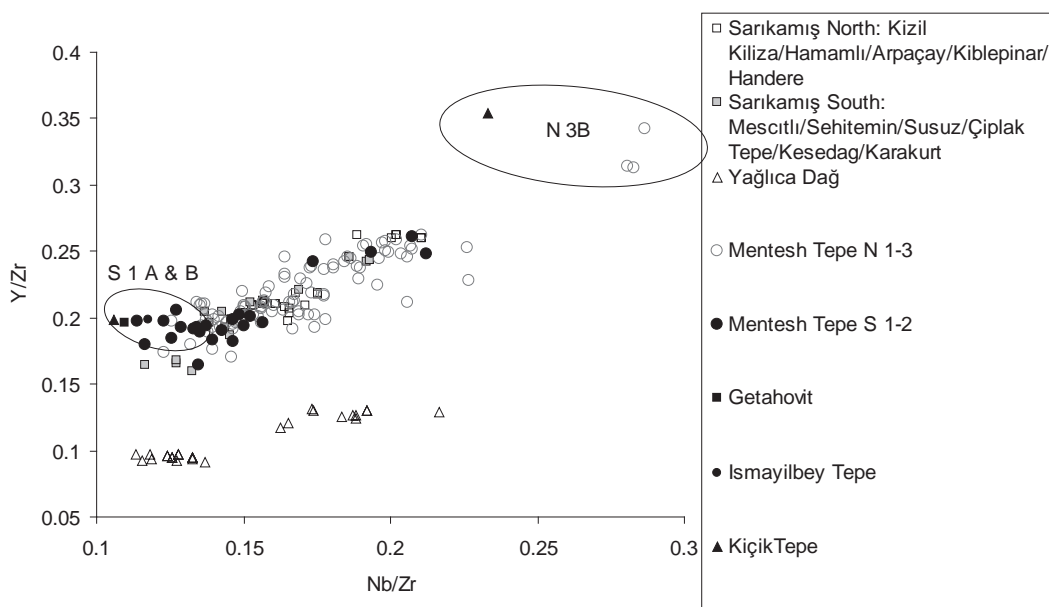


Fig. 7. Binary diagram of Y/Zr-Nb/Zr ratios for the obsidian artefacts attributed to the Sarıkamış area (comparison with geological samples and other artefacts attributed to the N 3B, S 1A and S 1B subgroups).

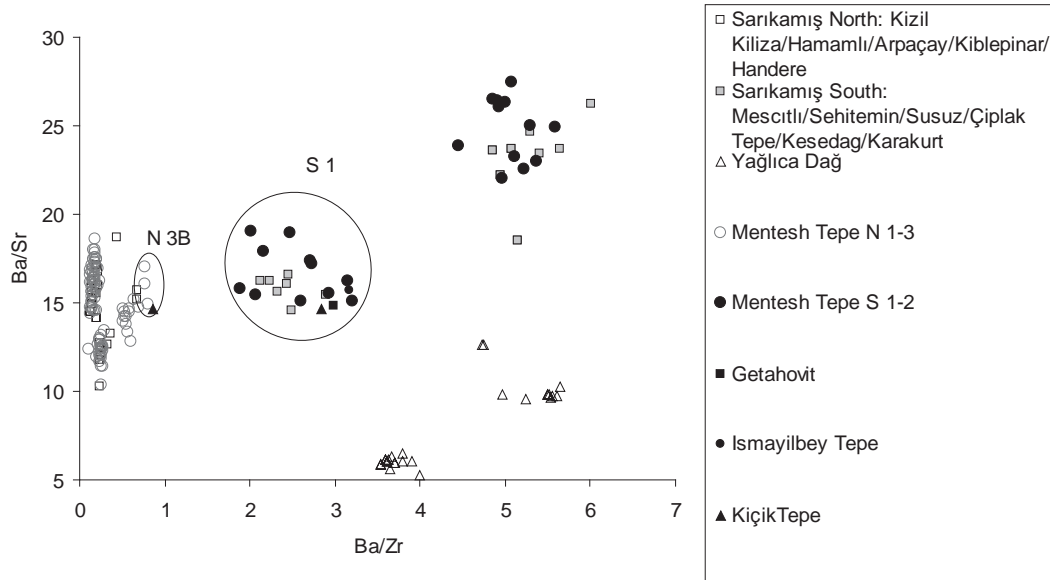


Fig. 8. Binary diagram of Ba/Sr-Ba/Zr ratios for the obsidian artefacts attributed to the Sarıkamış area (comparison with geological samples and other artefacts attributed to the N 3B, S 1A and S 1B subgroups).

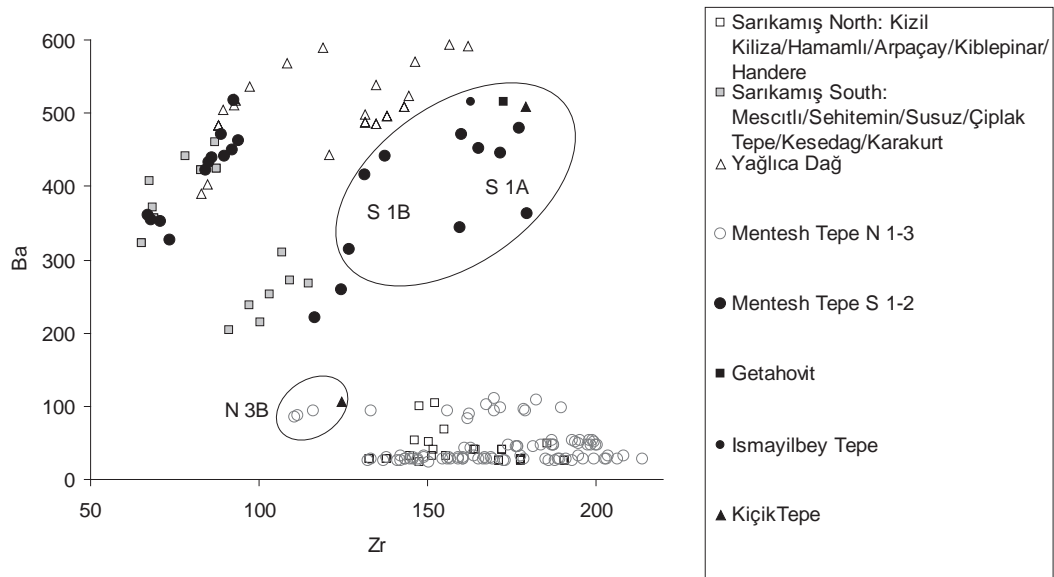


Fig. 9. Binary diagram of Ba-Zr contents for the obsidian artefacts attributed to the Sarıkamış area (comparison with geological samples and other artefacts attributed to the N 3B, S 1A and S 1B subgroups).

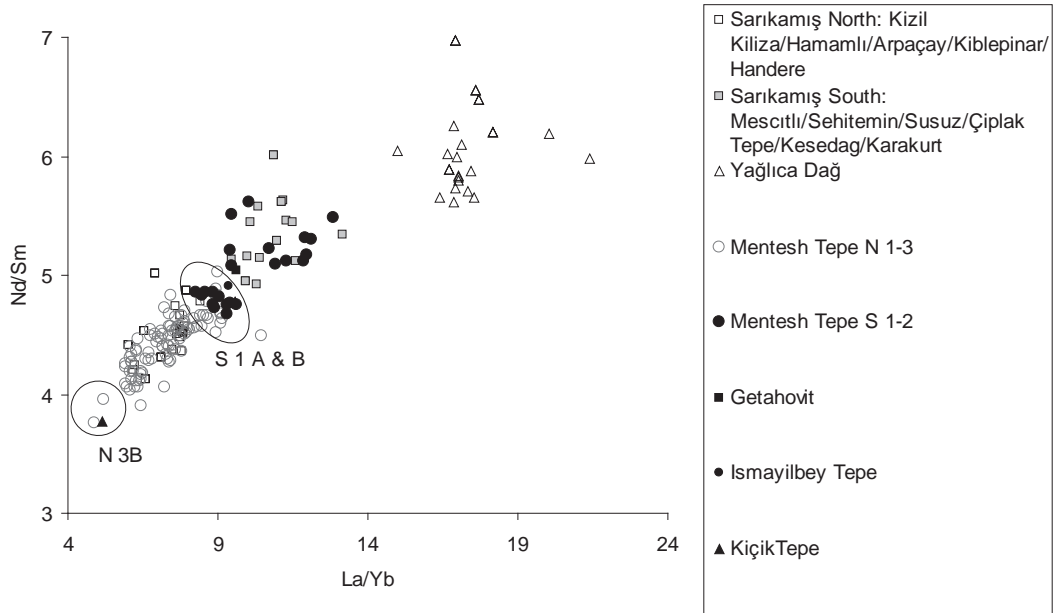


Fig. 10. Binary diagram of Nd/Sm-La/Yb ratios for the obsidian artefacts attributed to the Sarıkamış area (comparison with geological samples and other artefacts attributed to the N 3B, S 1A and S 1B subgroups).

TABLE 3. Compositional data obtained by LA-ICP-MS for the 365 obsidian artefacts from Mentesh Tepe analysed using LA-ICP-MS. Data are expressed in wt. % of oxides for the main major and minor elements (Na_2O to Fe_2O_3), and in parts per million for trace elements (Li to U), 1ppm = 0.0001 %.

| | Element | Na_2O | MgO | Al_2O_3 | SiO_2 | K_2O | CaO | TiO_2 | MnO | Fe_2O_3 | Li | B | Sc | Ti | Mn | Fe | Zn |
|-------------|---------|-----------------------|--------------|-------------------------|----------------|----------------------|--------------|----------------|--------------|-------------------------|------|------|------|------|-----|------|------|
| Arteni 3 | Av. | 3.69 | 0.059 | 13.4 | 77.0 | 4.38 | 0.60 | 0.092 | 0.071 | 0.62 | 47.3 | 36.7 | 10.0 | 550 | 546 | 4363 | 34.5 |
| 7 | Std. | 0.16 | 0.003 | 0.4 | 0.5 | 0.21 | 0.03 | 0.005 | 0.007 | 0.09 | 4.8 | 2.6 | 2.1 | 31 | 57 | 633 | 2.9 |
| Chikiani 2 | Av. | 3.78 | 0.10 | 13.7 | 76.2 | 4.41 | 0.72 | 0.11 | 0.056 | 0.82 | 41.0 | 22.6 | 7.55 | 658 | 432 | 5722 | 44.3 |
| 27 | Std. | 0.17 | 0.01 | 0.6 | 0.6 | 0.22 | 0.07 | 0.01 | 0.005 | 0.09 | 4.6 | 2.7 | 3.86 | 58 | 37 | 658 | 4.6 |
| Chikiani 3A | Av. | 3.71 | 0.12 | 14.0 | 75.5 | 4.56 | 0.80 | 0.12 | 0.053 | 0.91 | 36.9 | 20.3 | 6.73 | 736 | 409 | 6367 | 38.8 |
| 4 | Std. | 0.11 | 0.01 | 0.4 | 0.5 | 0.17 | 0.05 | 0.01 | 0.002 | 0.06 | 4.6 | 0.9 | 1.72 | 65 | 19 | 452 | 3.3 |
| Chikiani 3B | Av. | 3.80 | 0.20 | 13.7 | 75.4 | 4.25 | 0.98 | 0.18 | 0.048 | 1.25 | 34.9 | 17.9 | 5.79 | 1059 | 374 | 8732 | 44.4 |
| 14 | Std. | 0.20 | 0.02 | 0.3 | 0.5 | 0.14 | 0.06 | 0.01 | 0.003 | 0.20 | 4.5 | 1.1 | 1.39 | 55 | 22 | 1376 | 6.9 |
| Gegham | Av. | 4.22 | 0.041 | 13.4 | 76.8 | 4.23 | 0.55 | 0.065 | 0.083 | 0.52 | 78.3 | 44.5 | 7.78 | 392 | 641 | 3608 | 36.2 |
| 101 | Std. | 0.23 | 0.004 | 0.6 | 0.5 | 0.21 | 0.04 | 0.003 | 0.004 | 0.07 | 8.2 | 2.9 | 3.83 | 16 | 32 | 493 | 4.3 |
| Gutansar | Av. | 4.27 | 0.19 | 14.1 | 74.8 | 3.91 | 0.96 | 0.18 | 0.081 | 1.32 | 61.8 | 27.0 | 7.94 | 1049 | 627 | 9242 | 47.0 |
| 19 | Std. | 0.25 | 0.02 | 0.5 | 0.6 | 0.12 | 0.10 | 0.01 | 0.011 | 0.60 | 8.2 | 1.3 | 2.45 | 43 | 83 | 4216 | 14.6 |

| | Element | Na ₂ O | MgO | Al ₂ O ₃ | SiO ₂ | K ₂ O | CaO | TiO ₂ | MnO | Fe ₂ O ₃ | Li | B | Sc | Ti | Mn | Fe | Zn |
|----------------|---------|-------------------|-------|--------------------------------|------------------|------------------|------|------------------|-------|--------------------------------|------|------|------|-----|-----|-------|------|
| Hatis | Av. | 4.03 | 0.22 | 14.2 | 75.0 | 3.83 | 1.14 | 0.13 | 0.064 | 1.19 | 44.9 | 24.8 | 7.55 | 778 | 496 | 8329 | 34.7 |
| 4 | Std. | 0.17 | 0.08 | 0.5 | 0.9 | 0.18 | 0.20 | 0.03 | 0.002 | 0.26 | 6.0 | 1.7 | 2.09 | 197 | 19 | 1838 | 3.9 |
| Khorapor | Av. | 3.84 | 0.037 | 12.6 | 77.7 | 4.45 | 0.54 | 0.082 | 0.059 | 0.68 | 80.4 | 36.3 | 13.3 | 490 | 453 | 4737 | 29.8 |
| 11 | Std. | 0.26 | 0.003 | 0.4 | 0.9 | 0.18 | 0.14 | 0.006 | 0.007 | 0.30 | 4.0 | 1.3 | 10.2 | 36 | 52 | 2128 | 7.3 |
| Sarıkamış N 1 | Av. | 4.51 | 0.029 | 13.1 | 76.5 | 4.18 | 0.36 | 0.077 | 0.080 | 1.11 | 55.3 | 26.7 | 9.75 | 465 | 617 | 7731 | 73.6 |
| 54 | Std. | 0.21 | 0.004 | 0.5 | 0.5 | 0.19 | 0.06 | 0.007 | 0.008 | 0.13 | 8.3 | 2.3 | 5.22 | 42 | 66 | 909 | 10.2 |
| Sarıkamış N 2 | Av. | 4.54 | 0.039 | 13.3 | 76.1 | 4.24 | 0.36 | 0.090 | 0.079 | 1.13 | 52.3 | 25.9 | 9.63 | 539 | 614 | 7881 | 71.9 |
| 23 | Std. | 0.19 | 0.005 | 0.6 | 0.6 | 0.21 | 0.05 | 0.005 | 0.007 | 0.07 | 6.5 | 3.2 | 4.27 | 28 | 51 | 500 | 9.6 |
| Sarıkamış N 3A | Av. | 4.63 | 0.051 | 13.1 | 76.1 | 4.35 | 0.40 | 0.10 | 0.079 | 1.04 | 51.5 | 26.6 | 10.2 | 598 | 609 | 7273 | 67.6 |
| 12 | Std. | 0.28 | 0.008 | 0.6 | 0.6 | 0.23 | 0.04 | 0.01 | 0.007 | 0.11 | 6.7 | 4.7 | 4.7 | 35 | 51 | 791 | 8.5 |
| Sarıkamış N 3B | Av. | 4.26 | 0.039 | 12.8 | 77.4 | 4.16 | 0.37 | 0.085 | 0.078 | 0.73 | 55.1 | 29.4 | 7.95 | 508 | 607 | 5130 | 56.1 |
| 3 | Std. | 0.22 | 0.003 | 0.3 | 0.7 | 0.07 | 0.06 | 0.001 | 0.013 | 0.08 | 7.9 | 1.2 | 2.89 | 6 | 97 | 561 | 2.1 |
| Sarıkamış S 1A | Av. | 4.60 | 0.10 | 14.9 | 73.7 | 4.12 | 0.69 | 0.11 | 0.086 | 1.56 | 50.5 | 21.7 | 9.66 | 668 | 668 | 10895 | 67.4 |
| 6 | Std. | 0.27 | 0.04 | 0.4 | 0.7 | 0.22 | 0.04 | 0.01 | 0.005 | 0.18 | 6.2 | 2.6 | 2.40 | 83 | 40 | 1268 | 5.7 |
| Sarıkamış S 1B | Av. | 4.77 | 0.093 | 14.1 | 74.2 | 4.11 | 0.70 | 0.11 | 0.091 | 1.74 | 47.2 | 20.9 | 12.6 | 642 | 704 | 12149 | 77.4 |
| 3 | Std. | 0.14 | 0.018 | 0.6 | 0.8 | 0.06 | 0.06 | 0.01 | 0.008 | 0.07 | 0.8 | 0.5 | 0.9 | 48 | 61 | 505 | 3.6 |
| Sarıkamış S 1C | Av. | 3.82 | 0.081 | 13.4 | 76.2 | 4.61 | 0.48 | 0.14 | 0.028 | 1.08 | 46.3 | 30.6 | 4.83 | 865 | 220 | 7564 | 26.9 |
| 2 | Std. | 0.02 | 0.008 | 1.0 | 1.2 | 0.07 | 0.09 | 0.02 | 0.002 | 0.12 | 10.3 | 2.4 | 0.76 | 117 | 13 | 805 | 4.1 |
| Sarıkamış S 2A | Av. | 3.80 | 0.072 | 13.2 | 76.9 | 4.27 | 0.52 | 0.10 | 0.044 | 0.98 | 40.6 | 20.9 | 7.01 | 613 | 343 | 6873 | 33.5 |
| 8 | Std. | 0.12 | 0.025 | 0.5 | 0.5 | 0.12 | 0.07 | 0.01 | 0.003 | 0.15 | 6.1 | 0.4 | 2.35 | 64 | 20 | 1078 | 8.8 |
| Sarıkamış S 2B | Av. | 3.71 | 0.052 | 12.7 | 77.8 | 4.25 | 0.45 | 0.087 | 0.044 | 0.75 | 38.8 | 21.8 | 6.18 | 523 | 344 | 5239 | 29.2 |
| 4 | Std. | 0.14 | 0.002 | 0.2 | 0.2 | 0.18 | 0.05 | 0.001 | 0.001 | 0.02 | 6.0 | 1.1 | 1.58 | 8 | 8 | 156 | 4.0 |
| Syunik 2 | Av. | 4.01 | 0.037 | 12.6 | 77.6 | 4.50 | 0.41 | 0.091 | 0.065 | 0.63 | 57.1 | 17.3 | 3.47 | 548 | 505 | 4373 | 33.5 |
| 1 | Std. | | | | | | | | | | | | | | | | |
| Syunik 3 | Av. | 4.04 | 0.047 | 12.7 | 77.3 | 4.53 | 0.47 | 0.095 | 0.059 | 0.71 | 57.3 | 17.0 | 7.58 | 572 | 459 | 4946 | 41.0 |
| 12 | Std. | 0.21 | 0.002 | 0.4 | 0.3 | 0.24 | 0.04 | 0.004 | 0.005 | 0.05 | 7.7 | 3.4 | 3.42 | 27 | 38 | 318 | 8.1 |
| Tsaghkunyats 1 | Av. | 4.12 | 0.10 | 13.7 | 75.8 | 4.27 | 0.86 | 0.10 | 0.053 | 0.83 | 45.3 | 21.3 | 4.73 | 610 | 412 | 5829 | 36.0 |
| 35 | Std. | 0.17 | 0.01 | 0.6 | 0.6 | 0.17 | 0.06 | 0.005 | 0.004 | 0.13 | 5.5 | 1.5 | 1.95 | 27 | 30 | 934 | 7.3 |
| Tsaghkunyats 2 | Av. | 4.15 | 0.15 | 13.9 | 75.0 | 4.23 | 1.01 | 0.14 | 0.050 | 1.13 | 34.8 | 20.3 | 6.53 | 812 | 390 | 7879 | 35.7 |
| 12 | Std. | 0.18 | 0.02 | 0.5 | 0.7 | 0.19 | 0.10 | 0.01 | 0.005 | 0.16 | 4.8 | 1.1 | 2.76 | 38 | 39 | 1103 | 4.4 |
| Yağlıca Dağ | Av. | 4.11 | 0.13 | 13.3 | 76.2 | 4.10 | 0.69 | 0.14 | 0.046 | 1.14 | 37.0 | 37.4 | 6.04 | 864 | 352 | 8003 | 32.8 |
| 3 | Std. | 0.22 | 0.01 | 0.3 | 0.2 | 0.17 | 0.06 | 0.003 | 0.002 | 0.15 | 6.6 | 2.5 | 3.42 | 20 | 17 | 1075 | 3.9 |

| | Element | Rb | Sr | Y | Zr | Nb | Cs | Ba | La | Ce | Pr | Nd | Sm | Eu | Gd | Tb |
|----------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Arteni 3 | Av. | 108 | 23.8 | 17.7 | 69.5 | 28.7 | 2.72 | 272 | 18.1 | 35.2 | 3.13 | 11.1 | 2.46 | 0.27 | 2.43 | 0.45 |
| 7 | Std. | 8 | 2.4 | 1.5 | 6.5 | 2.2 | 0.24 | 34 | 1.6 | 3.6 | 0.29 | 0.9 | 0.23 | 0.11 | 0.32 | 0.05 |
| Chikiani 2 | Av. | 118 | 66.2 | 10.3 | 77.6 | 18.6 | 3.94 | 611 | 22.5 | 43.9 | 3.80 | 13.0 | 2.40 | 0.51 | 2.27 | 0.31 |
| 27 | Std. | 9 | 8.4 | 1.0 | 9.4 | 1.2 | 0.40 | 66 | 2.9 | 5.4 | 0.41 | 1.3 | 0.23 | 0.09 | 0.34 | 0.05 |
| Chikiani 3A | Av. | 118 | 83.4 | 11.6 | 100 | 18.4 | 3.84 | 795 | 29.2 | 53.7 | 4.80 | 16.2 | 2.83 | 0.59 | 2.73 | 0.36 |
| 4 | Std. | 9 | 5.0 | 1.1 | 8 | 0.5 | 0.43 | 48 | 2.7 | 2.5 | 0.45 | 1.4 | 0.21 | 0.05 | 0.29 | 0.05 |
| Chikiani 3B | Av. | 101 | 121 | 9.81 | 126 | 15.5 | 3.07 | 1026 | 34.7 | 63.7 | 5.26 | 17.5 | 2.81 | 0.67 | 2.47 | 0.30 |
| 14 | Std. | 7 | 8 | 0.84 | 8 | 0.7 | 0.30 | 74 | 2.9 | 7.5 | 0.46 | 1.3 | 0.21 | 0.08 | 0.36 | 0.04 |
| Gegham | Av. | 200 | 7.79 | 17.4 | 53.2 | 50.5 | 7.26 | 8.97 | 14.1 | 28.9 | 2.75 | 9.59 | 2.34 | 0.16 | 2.14 | 0.43 |
| 101 | Std. | 13 | 0.59 | 1.4 | 4.3 | 2.8 | 0.54 | 1.17 | 1.2 | 1.8 | 0.20 | 0.74 | 0.17 | 0.03 | 0.23 | 0.05 |
| Gutansar | Av. | 133 | 91.1 | 17.1 | 140 | 36.4 | 4.58 | 343 | 27.5 | 48.2 | 4.23 | 14.4 | 2.62 | 0.44 | 2.59 | 0.43 |
| 19 | Std. | 11 | 8.1 | 1.5 | 11 | 1.6 | 0.50 | 15 | 2.3 | 3.0 | 0.33 | 1.0 | 0.17 | 0.05 | 0.44 | 0.05 |
| Hatis | Av. | 93.1 | 97.4 | 11.0 | 79.3 | 21.4 | 3.43 | 430 | 23.3 | 45.1 | 3.39 | 11.8 | 2.10 | 0.43 | 2.20 | 0.30 |
| 4 | Std. | 7.5 | 21.5 | 1.2 | 10.2 | 1.4 | 0.39 | 29 | 2.0 | 9.2 | 0.24 | 0.9 | 0.17 | 0.04 | 0.30 | 0.03 |
| Khorapor | Av. | 196 | 2.42 | 10.5 | 61.7 | 34.4 | 6.26 | 2.08 | 17.0 | 33.4 | 2.86 | 9.81 | 1.92 | 0.12 | 2.03 | 0.31 |
| 11 | Std. | 9 | 0.37 | 0.8 | 4.1 | 1.4 | 0.35 | 0.58 | 1.3 | 1.8 | 0.16 | 0.69 | 0.24 | 0.02 | 0.72 | 0.09 |
| Sarıkamış N 1 | Av. | 134 | 1.75 | 37.5 | 169 | 28.5 | 4.12 | 28.0 | 30.7 | 61.8 | 6.06 | 23.0 | 5.28 | 0.23 | 5.03 | 1.00 |
| 54 | Std. | 10 | 0.18 | 2.6 | 24 | 1.4 | 0.38 | 2.0 | 3.8 | 6.7 | 0.60 | 2.1 | 0.37 | 0.05 | 0.54 | 0.11 |
| Sarıkamış N 2 | Av. | 132 | 3.90 | 38.1 | 188 | 28.4 | 3.96 | 47.9 | 35.6 | 70.4 | 6.78 | 25.1 | 5.46 | 0.28 | 5.13 | 1.00 |
| 23 | Std. | 7 | 0.40 | 2.7 | 12 | 1.4 | 0.31 | 3.7 | 3.0 | 5.6 | 0.59 | 1.9 | 0.36 | 0.03 | 0.52 | 0.12 |
| Sarıkamış N 3A | Av. | 133 | 6.76 | 36.3 | 170 | 28.6 | 3.97 | 96.8 | 35.5 | 70.2 | 6.74 | 24.4 | 5.27 | 0.34 | 4.84 | 0.97 |
| 12 | Std. | 11 | 0.53 | 2.8 | 13 | 1.8 | 0.34 | 7.5 | 2.5 | 4.5 | 0.50 | 1.8 | 0.38 | 0.05 | 0.61 | 0.09 |
| Sarıkamış N 3B | Av. | 143 | 5.50 | 36.5 | 113 | 32.0 | 4.53 | 87.6 | 22.2 | 45.7 | 4.56 | 18.0 | 4.55 | 0.18 | 4.14 | 0.85 |
| 3 | Std. | 8 | 0.63 | 2.9 | 3 | 1.2 | 0.43 | 4.5 | 1.1 | 3.2 | 0.41 | 0.5 | 0.38 | 0.05 | 0.82 | 0.13 |
| Sarıkamış S 1A | Av. | 116 | 26.4 | 32.5 | 168 | 21.0 | 3.46 | 438 | 35.0 | 64.0 | 6.41 | 25.7 | 5.29 | 0.68 | 5.19 | 0.86 |
| 6 | Std. | 14 | 5.4 | 1.6 | 8 | 1.6 | 0.48 | 63 | 1.5 | 5.3 | 0.46 | 0.9 | 0.27 | 0.12 | 0.38 | 0.06 |
| Sarıkamış S 1B | Av. | 114 | 23.9 | 24.8 | 132 | 19.3 | 3.30 | 390 | 27.9 | 60.7 | 5.22 | 20.9 | 4.28 | 0.61 | 4.38 | 0.67 |
| 3 | Std. | 4 | 6.6 | 0.8 | 5 | 0.1 | 0.17 | 68 | 0.5 | 1.4 | 0.06 | 0.3 | 0.20 | 0.09 | 0.47 | 0.03 |
| Sarıkamış S 1C | Av. | 136 | 15.3 | 21.6 | 121 | 16.4 | 4.72 | 239 | 28.9 | 53.2 | 4.72 | 16.4 | 2.95 | 0.28 | 2.94 | 0.54 |
| 2 | Std. | 3 | 2.0 | 1.5 | 5 | 0.5 | 0.13 | 28 | 1.9 | 0.6 | 0.32 | 1.0 | 0.22 | 0.10 | 0.08 | 0.03 |

| | Element | Rb | Sr | Y | Zr | Nb | Cs | Ba | La | Ce | Pr | Nd | Sm | Eu | Gd | Tb |
|----------------|---------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Sarikamış S 2A | Av. | 117 | 17.7 | 17.3 | 89.2 | 12.5 | 3.62 | 454 | 25.4 | 44.7 | 4.07 | 14.8 | 2.83 | 0.33 | 2.84 | 0.45 |
| 8 | Std. | 9 | 1.7 | 0.9 | 3.6 | 0.6 | 0.34 | 30 | 1.2 | 3.1 | 0.32 | 0.8 | 0.14 | 0.03 | 0.41 | 0.03 |
| Sarikamış S 2B | Av. | 124 | 15.3 | 17.4 | 69.8 | 13.7 | 4.14 | 348 | 19.3 | 36.3 | 3.39 | 11.8 | 2.47 | 0.26 | 2.22 | 0.43 |
| 4 | Std. | 11 | 1.0 | 0.5 | 2.9 | 0.7 | 0.40 | 15 | 0.8 | 2.1 | 0.12 | 0.2 | 0.06 | 0.02 | 0.10 | 0.02 |
| Syunik 2 | Av. | 187 | 6.02 | 7.13 | 68.5 | 37.9 | 4.87 | 12.0 | 22.3 | 39.8 | 2.94 | 7.88 | 1.07 | 0.04 | 0.63 | 0.12 |
| 1 | Std. | | | | | | | | | | | | | | | |
| Syunik 3 | Av. | 156 | 10.7 | 7.63 | 79.1 | 34.4 | 3.82 | 24.8 | 30.9 | 51.9 | 3.72 | 10.0 | 1.30 | 0.13 | 1.35 | 0.16 |
| 12 | Std. | 11 | 1.4 | 0.64 | 6.1 | 2.2 | 0.24 | 4.6 | 3.1 | 1.7 | 0.28 | 0.6 | 0.09 | 0.02 | 0.44 | 0.04 |
| Tsaghkunyats 1 | Av. | 104 | 120 | 7.93 | 75.7 | 21.1 | 3.36 | 542 | 31.4 | 51.0 | 4.17 | 12.9 | 1.97 | 0.34 | 1.71 | 0.24 |
| 35 | Std. | 9 | 14 | 0.70 | 6.3 | 1.2 | 0.38 | 47 | 3.5 | 4.3 | 0.30 | 0.8 | 0.13 | 0.05 | 0.27 | 0.04 |
| Tsaghkunyats 2 | Av. | 83 | 178 | 6.39 | 118 | 18.5 | 2.56 | 849 | 45.8 | 70.1 | 5.34 | 16.2 | 1.99 | 0.40 | 2.17 | 0.19 |
| 12 | Std. | 4 | 9 | 0.45 | 8 | 0.9 | 0.17 | 49 | 3.9 | 3.8 | 0.39 | 1.1 | 0.17 | 0.08 | 0.45 | 0.02 |
| Yağlıca Dağ | Av. | 113 | 37.6 | 12.6 | 104 | 16.3 | 3.53 | 494 | 25.6 | 42.4 | 3.57 | 12.0 | 2.04 | 0.30 | 2.03 | 0.32 |
| 3 | Std. | 11 | 4.8 | 1.4 | 8 | 1.4 | 0.50 | 44 | 2.8 | 3.6 | 0.51 | 1.0 | 0.18 | 0.04 | 0.28 | 0.03 |

| | Element | Dy | Ho | Er | Tm | Yb | Lu | Hf | Ta | Th | U | Ba/Zr | Ba/Sr | Nb/Zr | Y/Zr |
|-------------|---------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Arteni 3 | Av. | 2.97 | 0.59 | 1.88 | 0.27 | 2.13 | 0.30 | 2.67 | 1.71 | 13.5 | 5.77 | 3.9 | 11.4 | 0.42 | 0.26 |
| 7 | Std. | 0.29 | 0.06 | 0.17 | 0.02 | 0.16 | 0.04 | 0.30 | 0.17 | 1.2 | 0.55 | 0.5 | 0.7 | 0.03 | 0.02 |
| Chikiani 2 | Av. | 1.83 | 0.35 | 1.07 | 0.15 | 1.16 | 0.17 | 2.58 | 1.18 | 13.3 | 5.14 | 7.91 | 9.27 | 0.24 | 0.13 |
| 27 | Std. | 0.17 | 0.05 | 0.13 | 0.02 | 0.13 | 0.02 | 0.30 | 0.12 | 1.5 | 0.44 | 0.60 | 0.75 | 0.03 | 0.02 |
| Chikiani 3A | Av. | 1.98 | 0.40 | 1.17 | 0.17 | 1.32 | 0.19 | 3.10 | 1.19 | 15.2 | 5.00 | 7.94 | 9.53 | 0.18 | 0.12 |
| 4 | Std. | 0.19 | 0.05 | 0.10 | 0.03 | 0.12 | 0.03 | 0.34 | 0.07 | 1.6 | 0.47 | 0.20 | 0.32 | 0.02 | 0.01 |
| Chikiani 3B | Av. | 1.69 | 0.34 | 0.99 | 0.15 | 1.15 | 0.17 | 3.34 | 0.94 | 14.1 | 4.22 | 8.12 | 8.47 | 0.12 | 0.078 |
| 14 | Std. | 0.14 | 0.04 | 0.10 | 0.02 | 0.10 | 0.02 | 0.25 | 0.07 | 1.0 | 0.33 | 0.31 | 0.30 | 0.01 | 0.004 |
| Gegham | Av. | 2.80 | 0.59 | 1.72 | 0.26 | 2.00 | 0.29 | 2.51 | 3.94 | 24.9 | 15.2 | 0.17 | 1.15 | 0.96 | 0.33 |
| 101 | Std. | 0.24 | 0.06 | 0.16 | 0.04 | 0.17 | 0.03 | 0.22 | 0.30 | 2.2 | 1.0 | 0.02 | 0.10 | 0.09 | 0.01 |
| Gutansar | Av. | 2.79 | 0.56 | 1.76 | 0.26 | 2.09 | 0.30 | 4.06 | 2.52 | 16.0 | 8.79 | 2.47 | 3.79 | 0.26 | 0.12 |
| 19 | Std. | 0.24 | 0.06 | 0.16 | 0.05 | 0.19 | 0.05 | 0.38 | 0.18 | 1.4 | 0.89 | 0.17 | 0.31 | 0.02 | 0.01 |
| Hatis | Av. | 1.85 | 0.35 | 1.14 | 0.17 | 1.33 | 0.19 | 2.60 | 1.59 | 14.1 | 7.68 | 5.48 | 4.56 | 0.28 | 0.14 |
| 4 | Std. | 0.21 | 0.05 | 0.15 | 0.02 | 0.12 | 0.03 | 0.31 | 0.18 | 1.8 | 0.83 | 0.53 | 0.79 | 0.04 | 0.02 |

| | Element | Dy | Ho | Er | Tm | Yb | Lu | Hf | Ta | Th | U | Ba/Zr | Ba/Sr | Nb/Zr | Y/Zr |
|----------------|---------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| Khorapor | Av. | 1.61 | 0.32 | 1.10 | 0.15 | 1.31 | 0.19 | 2.67 | 2.14 | 28.9 | 14.3 | 0.034 | 0.85 | 0.56 | 0.17 |
| 11 | Std. | 0.13 | 0.03 | 0.17 | 0.01 | 0.12 | 0.01 | 0.20 | 0.08 | 2.3 | 0.5 | 0.009 | 0.14 | 0.04 | 0.003 |
| Sarıkamış N 1 | Av. | 6.34 | 1.34 | 4.05 | 0.60 | 4.45 | 0.65 | 5.63 | 1.59 | 18.0 | 6.59 | 0.17 | 16.1 | 0.17 | 0.22 |
| 54 | Std. | 0.43 | 0.11 | 0.29 | 0.05 | 0.29 | 0.05 | 0.56 | 0.12 | 1.3 | 0.51 | 0.03 | 1.3 | 0.03 | 0.03 |
| Sarıkamış N 2 | Av. | 6.42 | 1.36 | 4.08 | 0.60 | 4.45 | 0.65 | 5.93 | 1.55 | 17.8 | 6.48 | 0.25 | 12.3 | 0.15 | 0.20 |
| 23 | Std. | 0.36 | 0.12 | 0.29 | 0.06 | 0.27 | 0.07 | 0.41 | 0.09 | 1.3 | 0.48 | 0.01 | 0.7 | 0.01 | 0.01 |
| Sarıkamış N 3A | Av. | 6.04 | 1.28 | 3.84 | 0.57 | 4.16 | 0.62 | 5.45 | 1.54 | 17.2 | 6.54 | 0.57 | 14.3 | 0.17 | 0.21 |
| 12 | Std. | 0.46 | 0.11 | 0.37 | 0.05 | 0.39 | 0.06 | 0.47 | 0.12 | 1.2 | 0.52 | 0.05 | 0.7 | 0.02 | 0.01 |
| Sarıkamış N 3B | Av. | 6.13 | 1.22 | 3.89 | 0.54 | 4.15 | 0.59 | 4.51 | 1.78 | 18.6 | 7.13 | 0.78 | 16.0 | 0.28 | 0.32 |
| 3 | Std. | 0.57 | 0.17 | 0.28 | 0.10 | 0.39 | 0.09 | 0.44 | 0.24 | 1.7 | 0.65 | 0.02 | 1.1 | 0.00 | 0.02 |
| Sarıkamış S 1A | Av. | 5.54 | 1.13 | 3.53 | 0.50 | 3.85 | 0.56 | 5.14 | 1.21 | 15.8 | 5.76 | 2.61 | 16.8 | 0.12 | 0.19 |
| 6 | Std. | 0.30 | 0.07 | 0.19 | 0.05 | 0.18 | 0.05 | 0.28 | 0.10 | 0.9 | 0.65 | 0.41 | 1.4 | 0.01 | 0.01 |
| Sarıkamış S 1B | Av. | 4.30 | 0.86 | 2.72 | 0.39 | 3.09 | 0.43 | 3.88 | 1.06 | 12.1 | 5.53 | 2.95 | 16.7 | 0.15 | 0.19 |
| 3 | Std. | 0.13 | 0.05 | 0.11 | 0.02 | 0.10 | 0.02 | 0.14 | 0.03 | 0.4 | 0.47 | 0.41 | 2.0 | 0.01 | 0.01 |
| Sarıkamış S 1C | Av. | 3.51 | 0.78 | 2.40 | 0.43 | 2.97 | 0.44 | 3.94 | 1.22 | 19.9 | 7.92 | 1.98 | 15.6 | 0.14 | 0.18 |
| 2 | Std. | 0.12 | 0.03 | 0.15 | 0.10 | 0.32 | 0.04 | 0.13 | 0.01 | 1.8 | 0.06 | 0.14 | 0.3 | 0.002 | 0.02 |
| Sarıkamış S 2A | Av. | 2.81 | 0.59 | 1.86 | 0.27 | 2.18 | 0.32 | 3.12 | 0.90 | 15.8 | 5.64 | 5.10 | 25.7 | 0.14 | 0.19 |
| 8 | Std. | 0.17 | 0.03 | 0.09 | 0.02 | 0.14 | 0.02 | 0.10 | 0.05 | 0.6 | 0.58 | 0.24 | 1.3 | 0.01 | 0.01 |
| Sarıkamış S 2B | Av. | 2.81 | 0.59 | 1.84 | 0.28 | 2.14 | 0.32 | 2.69 | 1.00 | 14.1 | 6.21 | 5.00 | 22.9 | 0.20 | 0.25 |
| 4 | Std. | 0.12 | 0.03 | 0.08 | 0.02 | 0.09 | 0.02 | 0.14 | 0.05 | 0.3 | 0.59 | 0.41 | 0.8 | 0.02 | 0.01 |
| Syunik 2 | Av. | 0.94 | 0.21 | 0.69 | 0.13 | 1.14 | 0.19 | 2.92 | 2.11 | 31.4 | 11.2 | 0.18 | 2.00 | 0.55 | 0.10 |
| 1 | Std. | | | | | | | | | | | | | | |
| Syunik 3 | Av. | 1.02 | 0.22 | 0.77 | 0.13 | 1.10 | 0.17 | 2.92 | 1.82 | 26.9 | 9.35 | 0.32 | 2.33 | 0.44 | 0.10 |
| 12 | Std. | 0.10 | 0.05 | 0.08 | 0.01 | 0.12 | 0.05 | 0.30 | 0.15 | 3.4 | 0.78 | 0.06 | 0.20 | 0.04 | 0.003 |
| Tsaghkunyats 1 | Av. | 1.33 | 0.26 | 0.78 | 0.12 | 0.90 | 0.13 | 2.42 | 1.41 | 22.0 | 8.66 | 7.16 | 4.54 | 0.28 | 0.11 |
| 35 | Std. | 0.14 | 0.05 | 0.08 | 0.01 | 0.09 | 0.01 | 0.17 | 0.11 | 3.3 | 0.90 | 0.36 | 0.26 | 0.02 | 0.01 |
| Tsaghkunyats 2 | Av. | 1.01 | 0.20 | 0.66 | 0.10 | 0.79 | 0.12 | 2.92 | 1.11 | 24.7 | 7.92 | 7.19 | 4.77 | 0.16 | 0.054 |
| 12 | Std. | 0.08 | 0.02 | 0.07 | 0.01 | 0.08 | 0.02 | 0.23 | 0.11 | 2.2 | 0.45 | 0.52 | 0.15 | 0.01 | 0.002 |
| Yağlıca Dağ | Av. | 1.99 | 0.44 | 1.32 | 0.20 | 1.69 | 0.22 | 3.07 | 1.17 | 18.5 | 6.88 | 4.74 | 13.2 | 0.16 | 0.12 |
| 3 | Std. | 0.19 | 0.06 | 0.16 | 0.03 | 0.15 | 0.03 | 0.28 | 0.16 | 2.1 | 0.69 | 0.05 | 0.8 | 0.002 | 0.004 |

TABLE 4. Compositional data obtained by LA-ICP-MS for the 78 obsidian inclusions in pottery from Mentesh Tepe. Data are expressed in wt. % of oxides for the main major and minor elements (Na₂O to Fe₂O₃) and in parts per million for trace elements (Li to U), 1ppm = 0.0001 %.

| Source (obs. temper) | | Na ₂ O | MgO | Al ₂ O ₃ | SiO ₂ | K ₂ O | CaO | TiO ₂ | MnO | Fe ₂ O ₃ | Li | B | Sc | Ti | Mn |
|----------------------|------|-------------------|-------|--------------------------------|------------------|------------------|------|------------------|-------|--------------------------------|------|------|------|------|------|
| Gegham (52) | Av. | 4.10 | 0.052 | 13.7 | 76.0 | 4.63 | 0.67 | 0.066 | 0.082 | 0.60 | 66.3 | 48.4 | 14.9 | 394 | 636 |
| | Std. | 0.36 | 0.033 | 0.6 | 1.0 | 0.57 | 0.15 | 0.021 | 0.009 | 0.17 | 9.47 | 4.7 | 4.4 | 126 | 71 |
| Syunik (18) | Av. | 4.16 | 0.054 | 13.0 | 76.7 | 4.51 | 0.55 | 0.090 | 0.057 | 0.75 | 56.4 | 17.7 | 10.4 | 542 | 444 |
| | Std. | 0.23 | 0.023 | 0.5 | 0.8 | 0.37 | 0.11 | 0.010 | 0.005 | 0.12 | 10.2 | 2.1 | 4.9 | 62 | 40 |
| Tsaghkunyats 1 (3) | Av. | 4.13 | 0.11 | 14.7 | 74.4 | 4.55 | 1.02 | 0.10 | 0.051 | 0.83 | 44.9 | 23.7 | 17.2 | 628 | 398 |
| | Std. | 0.21 | 0.01 | 0.8 | 1.3 | 0.14 | 0.14 | 0.00 | 0.005 | 0.12 | 6.6 | 0.6 | 5.4 | 23 | 40 |
| Gutansar (2) | Av. | 4.41 | 0.21 | 15.1 | 73.8 | 4.17 | 1.11 | 0.18 | 0.071 | 0.87 | 56.9 | 30.0 | 16.7 | 1059 | 551 |
| | Std. | 0.22 | 0.005 | 0.7 | 1.1 | 0.28 | 0.12 | 0.00 | 0.005 | 0.24 | 3.5 | 1.5 | 5.5 | 24 | 38 |
| Sarikamış N 1 (1) | | 4.39 | 0.030 | 12.9 | 76.7 | 4.34 | 0.33 | 0.086 | 0.071 | 1.10 | 47.7 | 26.2 | 12.3 | 518 | 546 |
| Sarikamış S 2A (1) | | 4.12 | 0.072 | 14.0 | 75.4 | 4.58 | 0.65 | 0.097 | 0.043 | 0.92 | 40.1 | 25.3 | 17.6 | 581 | 331 |
| Chikiani (1) | | 3.93 | 0.13 | 14.9 | 73.9 | 4.84 | 0.95 | 0.13 | 0.054 | 1.01 | 37.0 | 23.1 | 18.6 | 766 | 421 |
| Source (obs. temper) | | Fe | Zn | Rb | Sr | Y | Zr | Nb | Cs | Ba | La | Ce | Pr | Nd | Sm |
| Gegham (52) | Av. | 4193 | 32.3 | 205 | 8.98 | 17.7 | 55.1 | 46.9 | 7.13 | 10.9 | 14.5 | 29.3 | 2.80 | 10.3 | 2.46 |
| | Std. | 1163 | 3.9 | 16 | 18.42 | 0.7 | 18.7 | 2.7 | 0.57 | 71.8 | 2.9 | 4.5 | 0.38 | 1.2 | 0.16 |
| Syunik (18) | Av. | 5249 | 33.7 | 176 | 11.1 | 7.90 | 79.1 | 33.7 | 4.35 | 23.9 | 28.2 | 46.2 | 3.52 | 9.8 | 1.20 |
| | Std. | 823 | 3.0 | 23 | 5.5 | 0.53 | 6.8 | 2.4 | 0.64 | 13.4 | 4.5 | 6.3 | 0.54 | 1.5 | 0.23 |
| Tsaghkunyats 1 (3) | Av. | 5824 | 34.3 | 116 | 123 | 8.49 | 79.8 | 19.3 | 3.59 | 590 | 30.7 | 49.3 | 4.15 | 14.0 | 2.15 |
| | Std. | 843 | 3.7 | 7 | 11 | 0.15 | 0.2 | 0.5 | 0.22 | 26 | 1.1 | 2.7 | 0.11 | 0.3 | 0.08 |
| Gutansar (2) | Av. | 6101 | 35.0 | 143 | 106 | 17.4 | 151 | 34.3 | 4.86 | 394 | 29.0 | 50.1 | 4.50 | 15.7 | 2.86 |
| | Std. | 1714 | 0.9 | 12 | 3 | 0.1 | 0.4 | 0.4 | 0.41 | 15 | 1.9 | 3.3 | 0.17 | 0.5 | 0.17 |
| Sarikamış N 1 (1) | | 7727 | 66.2 | 131 | 2.1 | 38.9 | 202 | 27.2 | 3.95 | 28.9 | 38.0 | 73.3 | 6.88 | 27.0 | 5.80 |
| Sarikamış S 2A (1) | | 6469 | 31.8 | 133 | 20.2 | 18.3 | 94.0 | 12.0 | 4.27 | 490 | 26.3 | 45.1 | 4.23 | 16.3 | 3.16 |
| Chikiani (1) | | 7046 | 42.2 | 130 | 83.4 | 10.9 | 101 | 16.7 | 4.05 | 825 | 27.7 | 48.9 | 4.39 | 16.6 | 3.00 |
| Source (obs. temper) | | Eu | Gd | Tb | Dy | Ho | Er | Tm | Yb | Lu | Hf | Ta | Th | U | |
| Gegham (52) | Av. | 0.18 | 2.62 | 0.50 | 2.93 | 0.58 | 1.85 | 0.27 | 2.13 | 0.29 | 2.55 | 3.68 | 23.9 | 14.2 | |
| | Std. | 0.10 | 0.51 | 0.04 | 0.15 | 0.03 | 0.11 | 0.02 | 0.14 | 0.02 | 0.34 | 0.27 | 3.1 | 1.3 | |
| Syunik (18) | Av. | 0.13 | 1.87 | 0.19 | 0.99 | 0.22 | 0.86 | 0.14 | 1.21 | 0.19 | 3.10 | 1.82 | 30.1 | 10.3 | |
| | Std. | 0.04 | 0.89 | 0.05 | 0.13 | 0.03 | 0.12 | 0.01 | 0.08 | 0.01 | 0.19 | 0.10 | 2.5 | 1.4 | |
| Tsaghkunyats 1 (3) | Av. | 0.75 | 3.88 | 0.38 | 1.50 | 0.28 | 1.08 | 0.12 | 1.07 | 0.15 | 2.56 | 1.35 | 20.5 | 7.80 | |
| | Std. | 0.23 | 1.02 | 0.08 | 0.07 | 0.03 | 0.12 | 0.01 | 0.04 | 0.02 | 0.11 | 0.05 | 0.6 | 0.35 | |
| Gutansar (2) | Av. | 0.65 | 4.02 | 0.58 | 3.01 | 0.57 | 1.98 | 0.29 | 2.26 | 0.31 | 4.23 | 2.45 | 15.8 | 8.62 | |
| | Std. | 0.33 | 1.11 | 0.07 | 0.01 | 0.01 | 0.04 | 0.01 | 0.11 | 0.00 | 0.12 | 0.05 | 0.7 | 0.12 | |
| Sarikamış N 1 (1) | | 0.27 | 4.58 | 1.05 | 6.49 | 1.33 | 4.19 | 0.60 | 4.59 | 0.66 | 6.00 | 1.49 | 18.7 | 6.40 | |
| Sarikamış S 2A (1) | | 0.67 | 4.26 | 0.63 | 3.01 | 0.64 | 2.22 | 0.31 | 2.46 | 0.33 | 3.44 | 0.91 | 16.2 | 5.76 | |
| Chikiani (1) | | 1.10 | 4.65 | 0.50 | 2.00 | 0.38 | 1.38 | 0.17 | 1.35 | 0.16 | 3.01 | 1.15 | 14.3 | 4.73 | |

Least-Cost Path analysis for the supply of obsidian to Mentesh Tepe

Method

The relationship between the sources of obsidian and the sites that sought supplies of this raw material has naturally led to research on how travel occurred between these places. The territory is not isotropic and Euclidian distances have little meaning in the description of human movements, especially in mountainous environments. Distance/time analyses and the production of routes based on movement constraint using GIS provide an opportunity to understand itineraries. However, these analyses have been the object of criticism.¹⁸ Criticism at the methodological level is legitimate, especially since it can also be formulated at a phenomenological level; these analyses are a product of a Cartesian and dehumanised representation of the world, which does not consider the physical experience of the terrain or the many subjective choices that affect actual movement. However, in the absence of information on movement that actually occurred between the sites and their sources of supply, these analyses enable the formulation of plausible itineraries and the mapping of circulation routes in a large region. Rather than an image of the material reality of ancient routes, the cartography suggests virtual and hypothetical itineraries that have no goal other than to make possible paths between the large topographic entities readable. In the same vein, the times of access calculated are only indicative but they have the advantage of being comparable with each other. Of course, these results are not necessarily the reflection of the journey of a single person or group from one end of a road to the other. Stages may have existed on the journeys, they were possibly seasonal, and exchange may also have occurred, implying that segments of the itinerary could have been travelled by different people.

Calculations were made in all directions, beginning from a particular point (Mentesh Tepe), based upon a raster surface for which each pixel represents a value c (constraint of movement) proportional to the time necessary to cross it. The result of the calculation attributes a cumulated value of distance/time to each pixel, which may be converted into time by multiplying it by a value of the speed chosen. The path between departure and arrival points (an obsidian deposit) connects, step by step, the pixels that show the weakest values. The modelling is thus based on the definition of the constraint raster surface. Several models and parameters were previously tested;¹⁹ we use Eastman's model,²⁰ based on a slope function ($c = 0.031p^2 - 0.25p + 1$). Except for lakes that are defined as impassable, only the slope function applies to our modelling. This is deliberately simple: it is isotropic (it does not take into account the difference in speed between the ascent and the descent), because it appears to us that there is no reason to prioritise the outward trip or the return. Nor does it take into account the crossing of watercourses because, in the zone under consideration situated between the Kura and the Araxes, there are no watercourses that cannot be crossed by fording, at least during part of the year. Fluvial navigation was hardly practiced in the South Caucasus, as the rivers are shallow, flow rapidly and often change their beds.²¹ In past centuries, the Kura River was navigable on the lower part of its course as far as Tbilisi. However, the only source of obsidian in Georgia, Chikiani, is drained by streams that flow into the Khrami, a river that is

¹⁸ Llobera 2001; Howey 2011; White and Surface-Evans 2012; Herzog 2014.

¹⁹ Chataigner and Barge 2008.

²⁰ Eastman 1999.

²¹ Roudik 2009.

not navigable up to its confluence with the Kura.²² Lake Sevan is navigable but no site of the sixth or fifth millennium is known near its shores and when navigation may have begun to be practiced is unknown. Moreover, according to a study carried out on Lake Van,²³ the speed of movement by boat is equivalent to that on foot. Certainly, the use of boats enables the transport of quantities much larger than would be feasible on foot. However, such a use would only be justified if the source of obsidian and the sites for which the material was intended were located close to the shores of a body of water, which is not the case for Lake Sevan: its southern shore lies several days' walk from the Gegham source, with an almost 1000 m difference in elevation, and its northern shore lies several days' walk from the final destination, Mentesh Tepe. This is why the model does not take into account fluvial or lacustrine navigation or forest cover, which is difficult to quantify, but only difficulties of the relief, which, as they appear to us, are the principal constraint to movement.

Evaluation of Journey Time

Transport in the sixth to fifth millennia BCE would have been on the backs of humans or oxen and perhaps goats²⁴ but not on equids, which were not domesticated in the South Caucasus until the Bronze Age. The effort of the bearer would have been a function of the weight carried.

Based on an experiment carried out with soldiers,²⁵ for a reasonably trained walker on flat terrain one can infer an average speed of 5 km/h for a load weighing 25–30 kg and a walking time of seven to eight hours per day. Several publications concerning travel in the past, especially for obsidian supplies, have estimated equivalent speeds on flat terrain: 4.9 km/h,²⁶ 5 km/h,²⁷ and between 4.7 and 5.2 km/h.²⁸

The obsidian sources are all located in the highlands. These areas are often surrounded by excellent pastureland, where herds from the valleys gather between June and October. It would therefore seem plausible that obsidian was obtained by shepherds at that time or was exchanged with shepherds coming from other areas. However, although transhumance to highlands was very likely at Mentesh Tepe during the Chalcolithic period, this activity is not yet determined for the Neolithic period, when the population appears to have been more involved in sedentarised agriculture than in herding.²⁹

The durations of journeys to the different sources are provided below, with and without herds (Table 5). According to ethnographic and historical studies, pack oxen can carry loads of 50–90 kg at a speed of about 3.2–4 km/h; however, the number of walking hours per day is reduced to about five hours, as the animals must stop to graze.³⁰ Sheep move at an equivalent speed, as they travel more than 200 km in 12 days,³¹ which means 16 to 18 km per day; that is, five hours of travel at a speed of between 3.2 and 3.6 km/h.

²² Ollivier *et al.* 2018, p. 268.

²³ Chataigner and Barge 2008.

²⁴ Sutliff 2019.

²⁵ Scott and Christie 2004.

²⁶ Murrieta-Flores 2010.

²⁷ Fritz *et al.* 2000; Tripcevich 2007; Taliaferro *et al.* 2010; Guimil-Farina and Parcero-Oubina 2015.

²⁸ Cortegoso *et al.* 2016.

²⁹ Herrscher *et al.* 2018; Benecke 2017. Isotopic analyses are underway.

³⁰ Goldsworthy 1998; Luttwak 2009; Köpp 2013.

³¹ Jarman *et al.* 2011; Hédouin 2011, p. 7.

TABLE 5. Durations of the journeys from Mentesh Tepe to the different sources of obsidian, given with and without herds.

| Paths | | Distance-time | Walkers | | | With a herd | | | |
|-----------|-----------------------------|---------------|---------------------|---------------------|---------------------|-----------------------|---------------------|-----------------------|---------------------|
| From | to | m | N hours (5 km/h) | N days (7 h/day) | N days (8 h/day) | N hours (3,2 km/h) | N days (5 h/day) | N hours (3,6 km/h) | N days (5 h/day) |
| Mentesh | Khorapor | 207046 | 41,4 | 5,9 | 5,2 | 64,7 | 12,9 | 57,5 | 11,5 |
| Mentesh | Gutansar | 235211 | 47,0 | 6,7 | 5,9 | 73,5 | 14,7 | 65,3 | 13,1 |
| Mentesh | Chikiani C2 | 237950 | 47,6 | 6,8 | 5,9 | 74,4 | 14,9 | 66,1 | 13,2 |
| Mentesh | Chikiani C3 | 239110 | 47,8 | 6,8 | 6,0 | 74,7 | 14,9 | 66,4 | 13,3 |
| Mentesh | Hatis | 249092 | 49,8 | 7,1 | 6,2 | 77,8 | 15,6 | 69,2 | 13,8 |
| Mentesh | Syunik 3/ Mets Sevkhar | 251385 | 50,3 | 7,2 | 6,3 | 78,6 | 15,7 | 69,8 | 14,0 |
| Mentesh | Syunik 2/ Mets Satanakar | 252965 | 50,6 | 7,2 | 6,3 | 79,1 | 15,8 | 70,3 | 14,1 |
| Mentesh | Tsaghkunyats2 | 254432 | 50,9 | 7,3 | 6,4 | 79,5 | 15,9 | 70,7 | 14,1 |
| Mentesh | Gegham/Geghasar | 264688 | 52,9 | 7,6 | 6,6 | 82,7 | 16,5 | 73,5 | 14,7 |
| Mentesh | Tsaghkunyats 1 | 269261 | 53,9 | 7,7 | 6,7 | 84,1 | 16,8 | 74,8 | 15,0 |
| Mentesh | Arteni | 322782 | 64,6 | 9,2 | 8,1 | 100,9 | 20,2 | 89,7 | 17,9 |
| Mentesh | Yağlıca | 378862 | 75,8 | 10,8 | 9,5 | 118,4 | 23,7 | 105,2 | 21,0 |
| Mentesh | Sarıkaş N | 397570 | 79,5 | 11,4 | 9,9 | 124,2 | 24,8 | 110,4 | 22,1 |
| Mentesh | Sarıkaş S | 443969 | 88,8 | 12,7 | 11,1 | 138,7 | 27,7 | 123,3 | 24,7 |
| | | | | | | | | | |
| Sarıkaş N | Tsaghkunyats 1 | 194794 | 39,0 | 5,6 | 4,9 | 60,9 | 12,2 | 54,1 | 10,8 |
| Sarıkaş N | Tsaghkunyats 2 | 199389 | 39,9 | 5,7 | 5,0 | 62,3 | 12,5 | 55,4 | 11,1 |
| Sarıkaş S | Arteni | 149709 | 29,9 | 4,3 | 3,7 | 46,8 | 9,4 | 41,6 | 8,3 |
| Sarıkaş S | Yağlıca | 119625 | 23,9 | 3,4 | 3,0 | 37,4 | 7,5 | 33,2 | 6,6 |
| Yağlıca | Arteni | 149709 | 29,9 | 4,3 | 3,7 | 46,8 | 9,4 | 41,6 | 8,3 |

Paths and Travel Time

1. Chikiani (49 Artefacts)

On the high plateaus of Javakheti in southern Georgia, the Chikiani volcano, which rises to an altitude of 2400 m, dominates Lake Paravani by about 300 m. Its gentle grass-covered slopes serve as pastures for herds; *Koyun Dağ*, the old Turkish name for this volcano, signifies ‘sheep’s mountain’. The two obsidian outcrops C2 and C3, separated by only 1500 m, indicate two

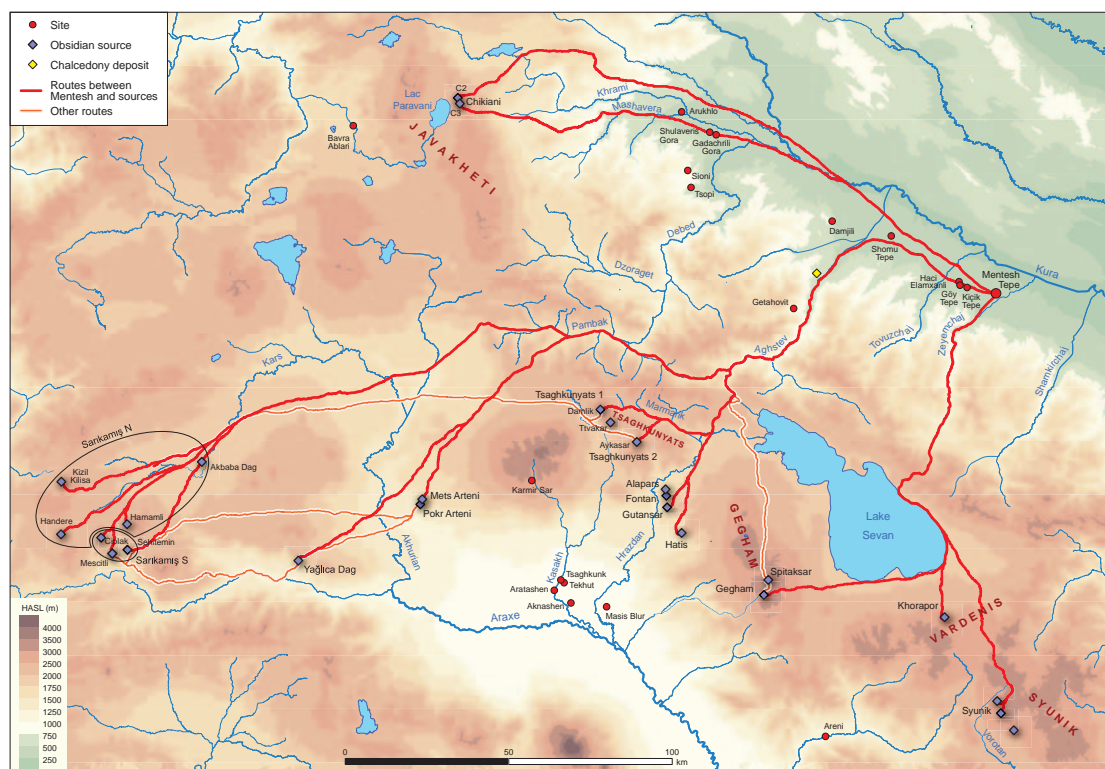


Fig. 11. Modelling of itineraries between Mentesh Tepe and the sources of obsidian.

different pathways from Mentesh Tepe (Fig. 11). This doubling, due to a very small variant in the positions of the sources exploited, is explained by the fact that from Chikiani and its heights continuing to the southeast (Javakheti Range), several rivers incise the relief, defining the ridges on which different paths are possible. The two paths modelled by spatial analysis suggest variability in possible solutions for the human groups who came from the basin of the Kura River to supply themselves with obsidian on the Chikiani. The northern path crosses the Kura River twice, which seems doubtful. This shows a limitation in the modelling that does not take into account the difficulties in crossing watercourses. It is more probable that the two itineraries were identical for a few more kilometres and diverged at the confluence of the Debed River.

The two paths frame the valley of the Khrami and the travel times from Mentesh Tepe to Chikiani, calculated by the modelling, are six to seven days for a lone walker (Fig. 12) and 13 to 15 days for a shepherd with his herd. The path first crosses the lowlands of the region of Marneuli, where the Neolithic sites of Shulaveri, Imiris Gora and Gadachrili Gora are located. Thus, two modes of supplying Mentesh Tepe with obsidian from the Chikiani volcano can be suggested: either a direct supply by human groups or transhumant shepherds — shepherds today still bring their herds from eastern Georgia to the plateaus of Javakheti³² — or a redistribution from the sites of the lower valley of the Khrami River, located halfway between Chikiani and Mentesh Tepe.

³² Jarman *et al.* 2011, p. 34.

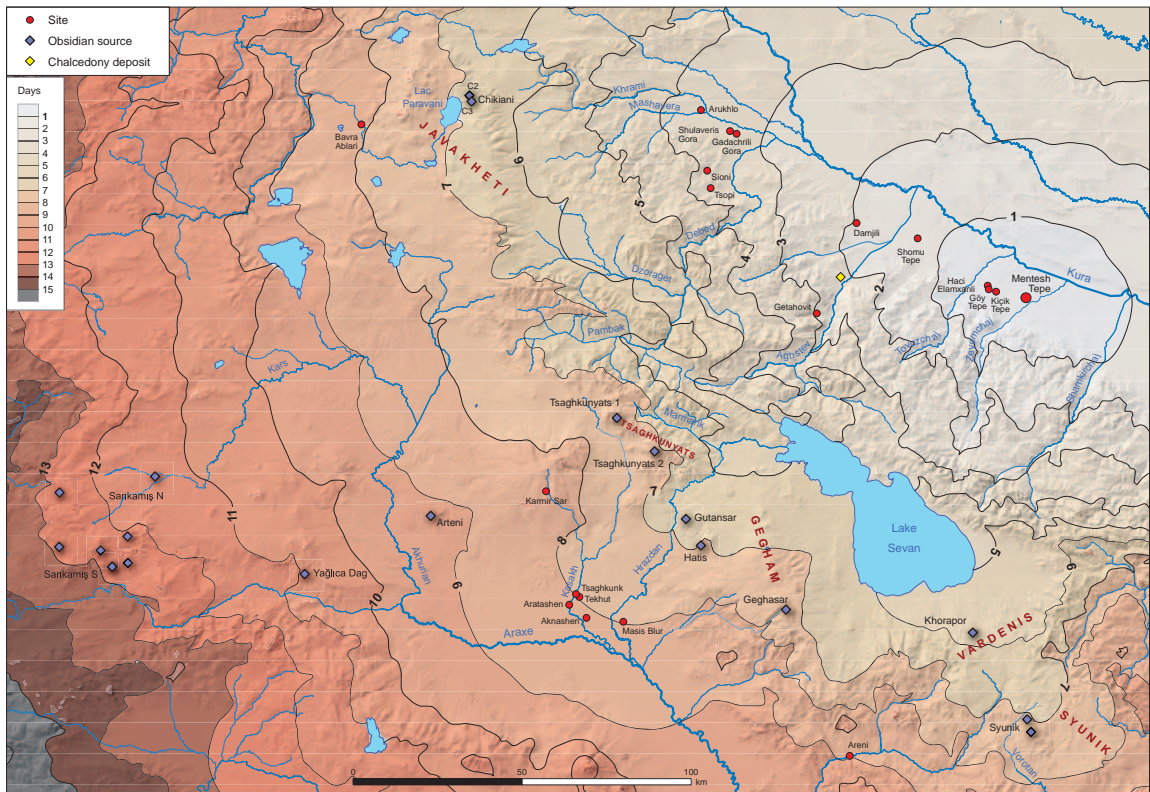


Fig. 12. Isochrones from Mentesh Tepe to obsidian sources (in days): modelling of lengths of travel for a lone walker (5km/h, 7h per day).

2. Sarıkamış (197 Artefacts)

The region of Sarıkamış in northeastern Turkey is a high plateau between 1800 and 2200 m above sea level, with the southern part deeply cut by the Araxes River. Unlike Chikiani, all paths from the sources of Sarıkamış (North and South) converge towards the same line, which at the beginning is that of the Kars River (Fig. 11). Several secondary deposits of obsidian are known in this valley, right up to its confluence with the Akhurian River. However, the lithic artefacts found at Mentesh Tepe include no obsidian pebbles for the Neolithic period and only one for the Chalcolithic. This would suggest that the material collected in the Sarıkamış area came from outcrops and not from secondary deposits of blocks rolled by river flow. In the region of Sarıkamış, the outcrops of obsidian are numerous and rich and those showing a composition characteristic of Sarıkamış North (such as Hamamli) are very close to others whose composition points to Sarıkamış South (Ciplak Dag, Mescitli). The human groups that travelled this territory may therefore have collected obsidian examples of the two variants at the same time, as do archaeologists during surveys.

The modelled path (Fig. 11) requires 10 to 13 days for a lone walker (Fig. 12) and 22 to 28 days for a shepherd with his herd. The path passes to the north of the Tsaghkunyats range, where several further outcrops exploited by the inhabitants of Mentesh Tepe are located.

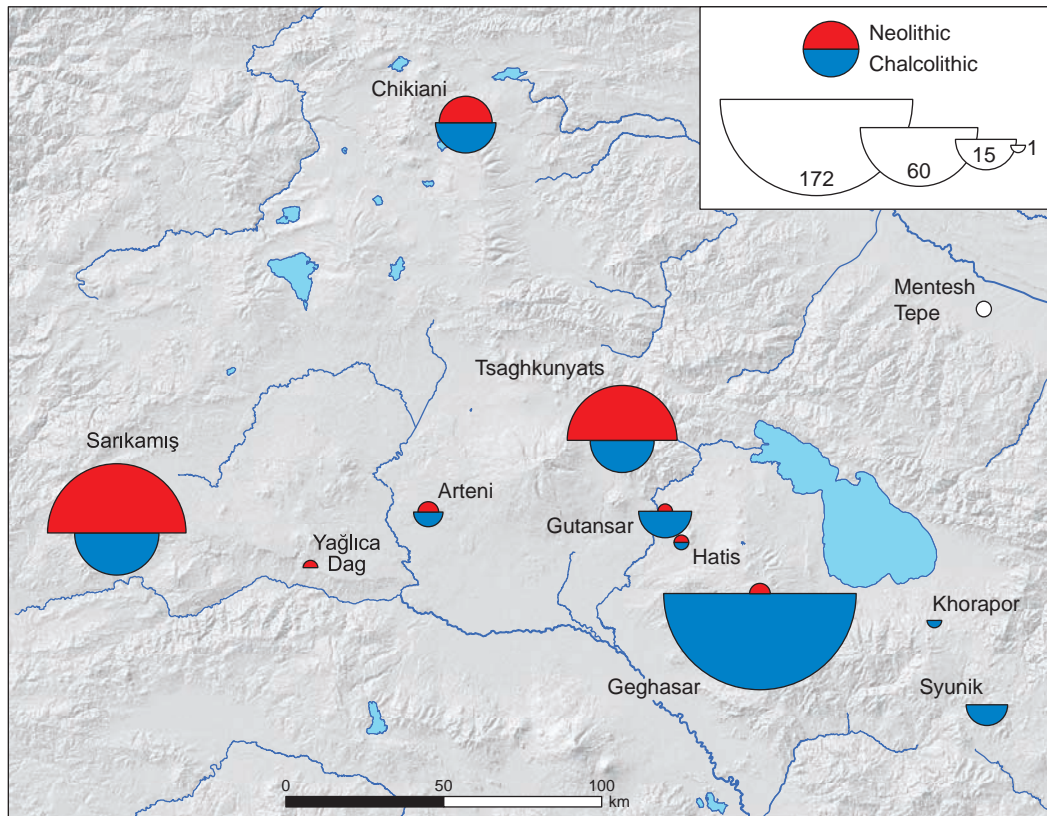


Fig. 13. Number of artefacts analysed from each source in the Neolithic and in the Chalcolithic periods.

3. Tsaghkunyats (109 Artefacts)

According to the modelling, the path towards the deposits of Tsaghkunyats passes through the valley of the Agstafachaj/Aghstev, as it does for Sarıkamış, then turns southward to join the valley of the Marmarik River (Fig. 11). This path from Mentesh Tepe to Tsaghkunyats requires seven to eight days for a lone walker (Fig. 12) and 14 to 17 days for a herd.

Examination of the obsidian supply to Mentesh Tepe shows a strong correlation between Sarıkamış and Tsaghkunyats (Fig. 13). During the Neolithic period at Mentesh Tepe, Sarıkamış supplied 53.9 per cent of obsidian, compared to 33.9 per cent from Tsaghkunyats, whereas during the Chalcolithic only 12.3 per cent of the obsidian was from Sarıkamış and 7.1 per cent from Tsaghkunyats.

The journeys to Sarıkamış and Tsaghkunyats follow the lower valley of the Agstafachaj/Aghstev, a region where deposits of chalcedony are present on both the Azeri³³ and the Armenian side, near the village of Sarigyugh.³⁴ The presence of chalcedony at the site as a raw material for lithic tools

³³ Ostaptchouk 2017, p. 354.

³⁴ Chataigner *et al.* 2020, p. 11.

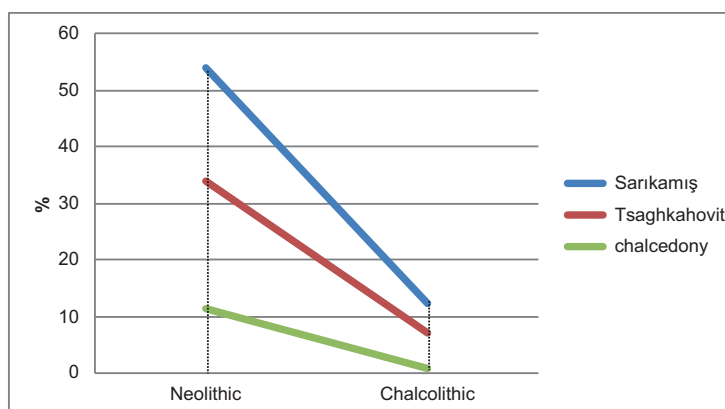


Fig. 14. Evolution of the supply of chalcedony and of obsidian from Sarıkamış and Tsaghkunyats, between the Neolithic and the Chalcolithic period.

similarly decreased with time: from 11.4 per cent in the Neolithic to 0.8 per cent in the Chalcolithic period³⁵ (Fig. 14). Thus, use of the entire path following the valley of the Agstafachaj/Aghstev is questionable for the Chalcolithic period.

4. Arteni (7 Artefacts) and Yağlıca (3 Artefacts)

These two sources are poorly represented at Mentesh Tepe and the paths require 8 to 10 days for a lone walker (Fig. 12) and 18 to 24 days for a herd. The Yağlıca Dağ volcano, which dominates the valley of the Araxes, is near the sources of Sarıkamış South; according to the modelling, three days are required for a walker to go from Sarıkamış South to Yağlıca (Table 5).

From the summit of Yağlıca Dağ, the Arteni volcano is clearly visible in the western part of the Ararat plain. The hypothesis of a path from Yağlıca Dağ to Arteni was modelled and would add four walking days to the path (Table 5, Fig. 11).

Given the small number of obsidian artefacts originating from these two sources (Fig. 13) and the detours that would have been necessary for a direct supply from their outcrops, it is possible that these came to Mentesh Tepe from Sarıkamış in an occasional manner via exchange networks.

5. Gutansar (25 Artefacts) and Hatis (4 Artefacts)

The path to Gutansar and Hatis crosses the valley of the Agstafachaj/Aghstev, then that of the Hrazdan River (Fig. 11). A walker would require six to seven days (Fig. 12) and a herd 13 to 16 days.

These sources of excellent quality obsidian could, in principle, constitute an alternative to that of Tsaghkunyats for the inhabitants of Mentesh Tepe, as the travel times are about one day less and the access is easier. However, only 3.6 per cent of the analysed artefacts come from Gutansar and 0.6 per cent from Hatis, whereas 15.7 per cent come from Tsaghkunyats (Fig. 13).

In fact, the deposits of Gutansar and Hatis were largely exploited in the Neolithic period by populations established in the Ararat plain; they represent 38 per cent of the obsidian supply at

³⁵ Guilbeau *et al.* 2017, p. 392, 394.

Aknashen, 37 per cent at Masis Blur and 21 per cent at Aratashen.³⁶ Gutansar and Hatis were the main supply of Masis Blur, ahead of Arteni (28 per cent) and the secondary supply of Aknashen and Aratashen, where Arteni was the most exploited source (respectively 48 per cent and 61 per cent). It is therefore possible that these different deposits (Gutansar, Hatis, Arteni) were part of the 'territory' of the Ararat plain sites but that their access was limited for human groups from other regions. This is nevertheless only a hypothesis and is hardly verifiable.

6. Gegham (273 Artefacts)

In the Gegham Mountains, obsidian flows outcrop on the Spitaksar and Geghasar volcanoes, which are only 6 km apart. Their chemical composition is identical but the quality of the material differs; it is excellent at Geghasar and poor at Spitaksar, where many impurities make the obsidian less suitable for knapping.

The path towards the Gegham sources may have passed west of Lake Sevan after separating from the branch leading to Gutansar. However, the modelling has favoured a path that follows the Zeyemchaj and goes east of Lake Sevan, linked to the paths leading to Khorapor and the sources of obsidian of Syunik: Satanakar and Sevkar (Fig. 11). The path to Gegham requires seven to eight days for a walker (Fig. 12) and 15 to 17 days for a herd.

Such a synergy is confirmed by the supplies of obsidian to Mentesh Tepe, where Khorapor and Syunik are not attested and Gegham is practically absent for the Neolithic (1.2 per cent of the supply to the site), whereas all three are manifest for the Chalcolithic period and Gegham represents almost 64 per cent of the obsidian supply (Fig. 13).

In order to better understand the choice of a pathway from Mentesh Tepe to Gegham passing east of Lake Sevan, we have modelled a comparison path to the west of the lake (Fig. 11). It is longer by one day for a walker and two days for a herd.

7. Khorapor (11 Artefacts)

The Khorapor volcano rises on the high Vardenis plateaus, which are extended by those of Syunik towards the south. Khorapor is the closest obsidian source to Mentesh Tepe: five to six days for a walker (Figs. 11–12) and 12 to 13 days for a herd.

The obsidian outcrops consist generally of small nodules included in a rhyolitic matrix containing many crystalline inclusions and therefore of very mediocre quality for knapping. At Mentesh Tepe, the eleven pieces attributed to Khorapor are very small pebbles, which may have been collected in the Gzhoy River flowing northward towards Lake Sevan.

8. Satanakar and Sevkar (Syunik 2 and 3, 17 Artefacts)

The obsidian sources of Mets Satanakar (Syunik 2), Mets Sevkar and Pokr Sevkar (Syunik 3) are located on the high Syunik plateaus, in the upper basin of the Vorotan River, at an altitude of between 2700 and 3000 m.

It is easy to travel on the highlands of Syunik and the pathway from Mentesh Tepe towards the neighbouring sources of Satanakar and Sevkar can be covered on foot in six to seven days (Figs. 11–12) or 14 to 16 days in the case of a shepherd and his herd.

³⁶ Badalyan *et al.* 2010; Martirosyan-Olshansky 2018a, 2018b; Badalyan 2010; Chataigner and Gratuze 2014b.

The quantity of obsidian from Syunik is very low compared to that from Gegham (17 artefacts to 273 artefacts, Fig. 13). This suggests, as in the case of Arteni and Yağlıca, that these artefacts or their pre-forms could be the result of occasional exchange. Thus, obsidian from Gegham and Syunik was found at the Neolithic site of Kamiltepe in the Mil steppe³⁷ and at the Neolithic and Chalcolithic site of Chalagantepe in the Karabagh steppe.³⁸

The diversity of provenances at Mentesh Tepe and the distance–times to the sources suggest multiple modes of acquisition of raw materials (direct access, exchange and redistribution), which will be discussed below.

Technology

695 artefacts were selected for sourcing according to their technological and typological characteristics and, on rare occasions, the aspect of their obsidian. Among these, 165 come from the Neolithic phases, 269 from the Chalcolithic horizons and 261 from chronologically mixed contexts. The distinction between these three sets was made possible by careful examination of stratigraphy and of pottery found in association with the lithic material.

Mentesh Tepe is a site where stratigraphic disturbances are frequent, due to numerous deep silos, garbage pits, many graves and two kurgans that cut deeply into the occupation layers. For these reasons, and given the technical homogeneity of the lithic material within the Neolithic and Chalcolithic periods, no distinction was made between their internal phases. Given these methodological caveats, the number of artefacts characterised by period (Neolithic and Chalcolithic) still remains high and avoids biases inherent to small samples. The results of the technological study made on the Neolithic and Chalcolithic assemblages presented here are based upon the obsidian sources.

Experience shows that the greater the number of analyses conducted, the more sources are identified.³⁹ The size of our dataset allows us to identify not only the main sources but also secondary ones. We therefore obtained a more complete picture of obsidian procurement at the site. The artefacts were selected after we carried out the technological study of the assemblages. Our purpose was to determine the source of the obsidian for the blade production dominant at the site; a few flakes and cores were also studied (Table 6).

TABLE 6. Sample.

| | Block | Flake core | Flake | Blade core | Blade | Undetermined | Total |
|----------------|-----------|------------|------------|------------|------------|--------------|------------|
| Neolithic | | 4 | 22 | 1 | 134 | 4 | 165 |
| Chalcolithic | I | 8 | 48 | 1 | 203 | 8 | 269 |
| Mixed contexts | II | 17 | 38 | | 182 | 13 | 261 |
| Total | 12 | 29 | 108 | 2 | 519 | 25 | 695 |

³⁷ Lyonnet *et al.* 2012b, p. 170.

³⁸ Badalyan *et al.* 2004a, p. 449.

³⁹ Campbell and Healey 2018.

A macroscopic examination of the different types of obsidian was initially carried out, leading to a classification of their external aspects. Criteria such as cortex morphology, translucency, general homogeneity, inclusions and voids, surface roughness, gloss and colours were used. However, this visual discrimination is not as accurate as geochemical analysis;⁴⁰ obsidians with the same aspect can come from different sources and, conversely, a given source can show obsidians with diverse macroscopic aspects.

The results of the technological study made on the Neolithic and Chalcolithic assemblages presented here are based upon obsidian sources. Detailed description of the lithics for each source is provided, as allowing future comparisons with other sites is of paramount importance. Such detailed descriptions are absent in the present-day literature. The analysis of the lithic industry found in chronologically mixed contexts is shown in **Appendix 1**; the results are consistent with those of the three periods under study and no additional qualitative element was identified.

Neolithic

The assemblage (**Fig. 15**, **Tables 7–8**) produced from obsidian coming from **Sarıkamış North** is dominant at the site during the Neolithic period (**Figs. 15: 6** and **15: 8**).

Blade cores are represented only by one mesial fragment, reworked by short and hinged removals. The two flake cores have lengths included between 40 and 50 mm. One has multidirectional scars; the flakes were knapped by hard direct percussion. The second bears a residual natural surface and its morphology is somewhere between that of a core knapped on an anvil and a *pièce esquillée*. Among the flakes, five are partly covered by cortex and one is completely cortical. Two flakes were knapped from blade cores, one extracted by direct or indirect soft percussion and the other by hard direct percussion. Concerning the typology of flakes, we noticed the presence of two *pièces esquillées*, one burin and one trapeze. Blades dominate the assemblage. Among the collection, we found six lateral blades, one having a butt with a natural surface. Blanks are straight and regular and correspond to blades manufactured by pressure-flaking on prismatic cores. Their width varies between 10 and 29.8 mm. Following J. Pelegrin's experimental data,⁴¹ such dimensions fit with techniques such as pressure with a shoulder crutch (mode 2), pressure with a short crutch in a sitting position (mode 3) for the narrower examples, and pressure with a long crutch in a standing position (mode 4) for some of the larger ones. This latter technique can produce bladelets and blades of all the represented dimensions, reaching 24–25 mm and, exceptionally, up to 29.8 mm. It is worth noticing that the wider blanks (over 24 mm wide, three artefacts) may indicate the use of a lever (mode 5). Cores are prismatic and exploited following a semi-turning or turning mode. On the basis of negative scars of the upper face,⁴² we can identify the operative codes (the order of the blade removals); they are mainly 212' or in a lesser proportion 123, 321 and, more rarely, 12 and 21. Blades have mainly a trapezoidal section. The platform is carefully prepared, with removals oriented towards the surface of *débitage*, and the butt angle is 80–90°. The butts are

⁴⁰ Chataigner and Gratuze 2014a, p. 44; Chataigner and Gratuze 2014b, pp. 50–51; Martirosyan-Olshansky 2018a, 2018b.

⁴¹ Pelegrin 2012, fig. 18.12.

⁴² Binder and Gassin 1987.

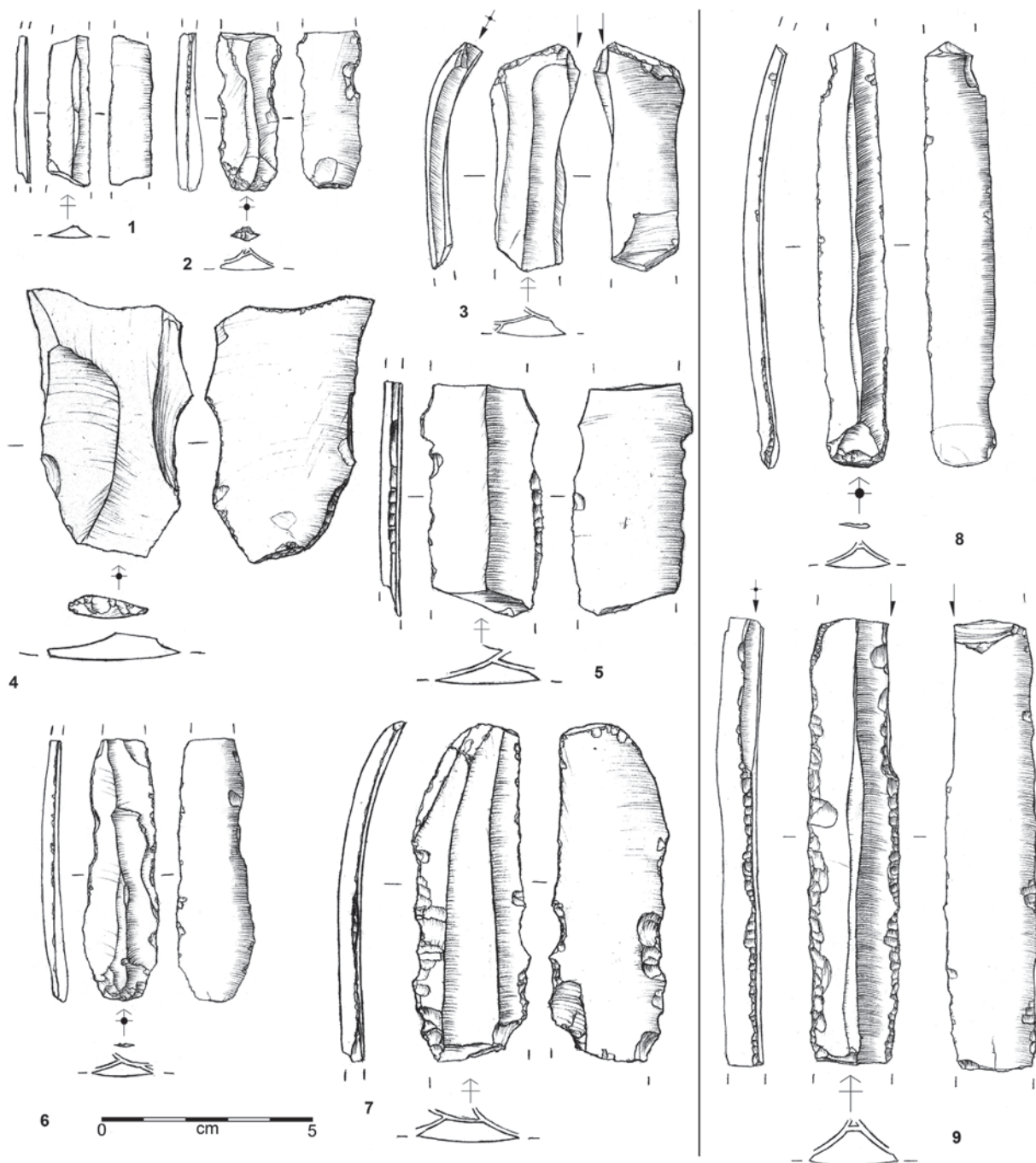


Fig. 15. Obsidian artefacts from Mentesh Tepe. 1–7: Neolithic; 8–9: Chalcolithic. 1–3 and 5–9: pressure blades; 4: shaping flake. 1: obsidian from Artani; 2: from Chikiani; 3: from Hatis; 4 and 9: from Gegham; 5: from Tsaghkunjats; 6 and 8: from Sarıkamış; 7: from Yağlıca.

TABLE 7. Neolithic Period. Technological breakdown of the sourced artefacts.

| Table | Blade core | Flake core | Flake | Blade width < 24 mm | Blade width > 24 mm | Undetermined | Total |
|-----------------|------------|------------|-----------|---------------------|---------------------|--------------|------------|
| Sarıkamış north | 1 | 2 | 14 | 54 | 3 | 2 | 76 |
| Sarıkamış south | | | | 12 | 1 | | 13 |
| Tsaghkunyats | | 2 | 5 | 45 | 2 | 2 | 56 |
| Chikiani | | | | 12 | 1 | | 13 |
| Arteni | | | 1 | 1 | | | 2 |
| Gegham | | | 2 | | | | 2 |
| Gutansar | | | | 1 | | | 1 |
| Hatis | | | | 1 | | | 1 |
| Yağlıca | | | | | 1 | | 1 |
| Total | 1 | 4 | 22 | 126 | 8 | 4 | 165 |

TABLE 8. Neolithic Period. Typological breakdown of the sourced artefacts. Br, burin; LR, lateral retouch; Tr, truncation; PE, *pièce esquillée*; Tp, trapeze; Bo, borer; B, beak; N, notch; Sc, scraper; Ir, irregular retouch; Un, unretouched. The presence of sickle elements is not considered here.

| | Br | Br/LR | Br/Tr | PE | PE/LR | LR | LR/Tr | Tr | Tp | Bo | B | N | Sc | Ir | Un | Total |
|-----------------|-----------|----------|----------|-----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|------------|
| Sarıkamış north | 9 | 3 | 3 | 9 | 1 | | | | 3 | 1 | 1 | | | 19 | 22 | 76 |
| Sarıkamış south | 2 | 1 | 1 | | 1 | 1 | | | | | | | | 2 | 5 | 13 |
| Tsaghkunyats | 7 | | | 5 | 1 | 6 | 1 | 1 | 1 | 1 | | 1 | 1 | 13 | 18 | 56 |
| Chikiani | 2 | 1 | 1 | 1 | | 4 | | | | | | | | 2 | 2 | 13 |
| Arteni | | | | 1 | | | | | | | | | | 1 | | 2 |
| Gegham | | | | | | | | | | | | | | 1 | 1 | 2 |
| Gutansar | | | | | | | | | | | | | | | 1 | 1 |
| Hatis | 1 | | | | | | | | | | | | | | | 1 |
| Yağlıca | | | | | | 1 | | | | | | | | | | 1 |
| Total | 21 | 5 | 5 | 16 | 3 | 17 | 1 | 1 | 4 | 2 | 1 | 1 | 1 | 38 | 49 | 165 |

tiny and mainly plain (nine examples), linear (two), punctiform (one), faceted (one), cortical (two) or with natural surface (one). Eight of the blades are broken using an incision prior to breakage to control the fracture. Blade typology is diverse, with a high proportion of burins and *pièces esquillées* and, interestingly, two trapezes. The large blades show retouching (two) and the presence of a burin (one). We have observed four blanks with a macroscopic wear that could correspond to sickle elements, three of them are also a burin, a *pièce esquillée* or a piece with lateral retouch. One of the blades shows the remains of bitumen but we observed no retouch or wear on the blank.

Concerning **Sarıkamış South**, only blades were present in the sample. They have the same technological characteristics as the Sarıkamış North material. Butts are plain (two), linear (one) and faceted (one). Codes 212' are dominant. The widths of the blades are between 11 and 19 mm. A blade with a width of 33 mm was probably knapped using a lever, then retouched on both sides and used as a wedge (*pièce esquillée*). On the other blades, burins are present as well as lateral retouch. A sickle element may be included in this group of artefacts.

Tsaghkunyats obsidian is the second most frequent raw material found in the Neolithic levels. Two flake cores are attested. Their lengths are less than 34 mm. One is on a flake with residual natural surface. The ventral surface is the striking platform for unipolar *débitage* of short and irregular flakes. The second core is also on flake and the exploitation is similar. The technique used is hard direct percussion. Of the five flakes, the largest measures 76 mm in length. Two blanks bear a residual natural surface. Two flakes are knapped using hard direct percussion. Blades dominate. Two of them were knapped using direct percussion. The rest are pressure-flaked from prismatic cores exploited according to a semi-turning or turning mode. One lateral blade presents a cortical surface. Butts are at an angle of 80°–90° and plain (five), linear (one), punctiform (two) or faceted (two). The preparation of the detachment expands toward the surface of *débitage* and exceptionally in direction of the butt. Blanks bear two to five scars but the majority have a trapezoidal section. The width of the blades varies from 10 to 30.6 mm, which is consistent with the use of a shoulder crutch (mode 2), a short crutch in a sitting position (mode 3), a long crutch in a standing position (mode 4), and the possible use of a lever for two blades with a width superior to 24 mm. These last two blades are a piece with a lateral retouch and a wedge (*pièce esquillée*). One flake has lateral retouch. Blades are typologically varied: burin, wedge, lateral retouch, truncation, trapeze, borer, notch and scraper. One blade shows lateral retouch made by pressure-flaking.

From **Chikiani**, our sample includes only blades resulting from the production of blanks by pressure-flaking from prismatic cores. They are regular in shape; their sections are trapezoidal except for one, which is triangular. Their butts are plain (one), linear (two) or faceted (one) and at an angle of 85–90°. They were prepared by very small removals towards the *débitage* surface, except in one case towards the butt. On one example the overhang is smoothed. Most of the blades have a width less than 24 mm and thus are compatible with modes 2 to 4 of pressure techniques. Among the largest are a blade of 23.6 mm and another of 28.6 mm in width, which may have been detached by means of a lever (mode 5). The latter is a blade knapped at the beginning of the exploitation of the core and transformed with lateral retouches. The typology of the other blades comprises burins, *pièces esquillées* and lateral retouch. One blade has been intentionally broken by means of an incision.

The other sources are represented by one or two elements. From **Arteni**, we have only a flake and a small pressure blade (10 mm in width). From **Gegham**, we identified two flakes, including a shaping flake, and from **Gutansar**, one pressure blade with a width of 16 mm. From **Hatis**, the pressure blade has a residual natural surface and measures 20 mm in width. From **Yağlıca**, the pressure blade is large (26.6 mm in width, Fig. 15: 7) and was probably knapped using a lever. The blank was transformed with lateral retouch at least partly made by pressure-flaking.

One would have expected a large diversity of technical and typological practices from one raw material to the other or from one source to the other. However, a high degree of homogeneity

was observed, regardless of where the obsidian was sourced (Tables 7–8). Cores are rare in our sample, as they are in the whole lithic industry attributed to the Neolithic period. In addition to a fragment of a blade core from Sarıkamış North, four flake cores are from Sarıkamış North and Tsaghkunyats. These observations indicate that the artefacts were at least partially knapped on site. Knapping is truly attested for flake production, with cores found in living spaces, and scarcer in the case of blade manufacture, with a lack of cores and technical pieces. The blade core was intentionally fragmented and exploited for irregular flakes. The flake cores were used to produce small irregular flakes and one of them may have been the result of *débitage* on an anvil. These productions can be considered expedient and done at the site on raw blocks, cores or flakes brought to the village. There are larger flakes with lengths between 40 and 90 mm, which reflect other modes of production on larger cores or association with blade production (Sarıkamış North and Tsaghkunyats). Sourced flakes are associated with Sarıkamış North, Tsaghkunyats, Arteni and Gegham. Apart from two blades knapped by direct percussion from Tsaghkunyats, the production is homogeneous, with the exploitation of prismatic cores following a semi-turning or turning mode. Pressure by leaning on a crutch in a standing position may be the most frequent technique on most types of obsidian (Sarıkamış North and South, Tsaghkunyats, Chikiani, Arteni, Gutansar and Hatis). Some, if not all, of the eight blades with a width above 24 mm may have been detached by pressure provided by a lever. They are made on raw materials coming from different sources: Sarıkamış North and South, Tsaghkunyats, Chikiani and Yağlica. The technical characteristics of the reduction sequences are the same (morphology and regularity of the blanks, codes, preparation to detachment, butts). The skill and know-how needed to shape and make the most of the exploitation of cores is greater where large cores are concerned. The skill required is also greater when pressure is applied using a lever. Regarding typology, no difference from one obsidian source to the other was noticed (Table 8). Burins are attested on five distinct kinds of obsidian, as well as *pièces esquillées* and lateral retouches. Trapezes and borers, although rare in our sample, are made of two kinds of obsidian, namely the most frequent: Sarıkamış North and Tsaghkunyats. In our sample, blanks produced by pressure with a copper tip are absent but they exist in small quantities in the unsourced Neolithic material. During the Neolithic period, other characteristics, such as faceted butts (Sarıkamış North, Tsaghkunyats, Chikiani), incision prior to breakage (Sarıkamış North, Chikiani), and retouch by pressure-flaking (Tsaghkunyats, Yağlica) are apparent. These characteristics are more frequent in the Chalcolithic levels.

Chalcolithic

During the Chalcolithic period (Fig. 15: 8–9 and Fig. 16: 1–5), the obsidian from Gegham is largely predominant (Tables 9–10).

The only blade core analysed (223 × 100 × 97 mm) was not carefully shaped. It was made from a raw material that contained natural cracks. The core bears two antero-lateral crests and a posterior crest with a residual natural surface. The surface of the block shows repeated cones of violent direct percussion which, in some cases, created short and irregular scars. The core was deliberately damaged. Flake cores were knapped with hard direct percussion to produce small irregular flakes or, in one case, irregular bladelets. As regards flakes, eight are shaping flakes. The butts, when

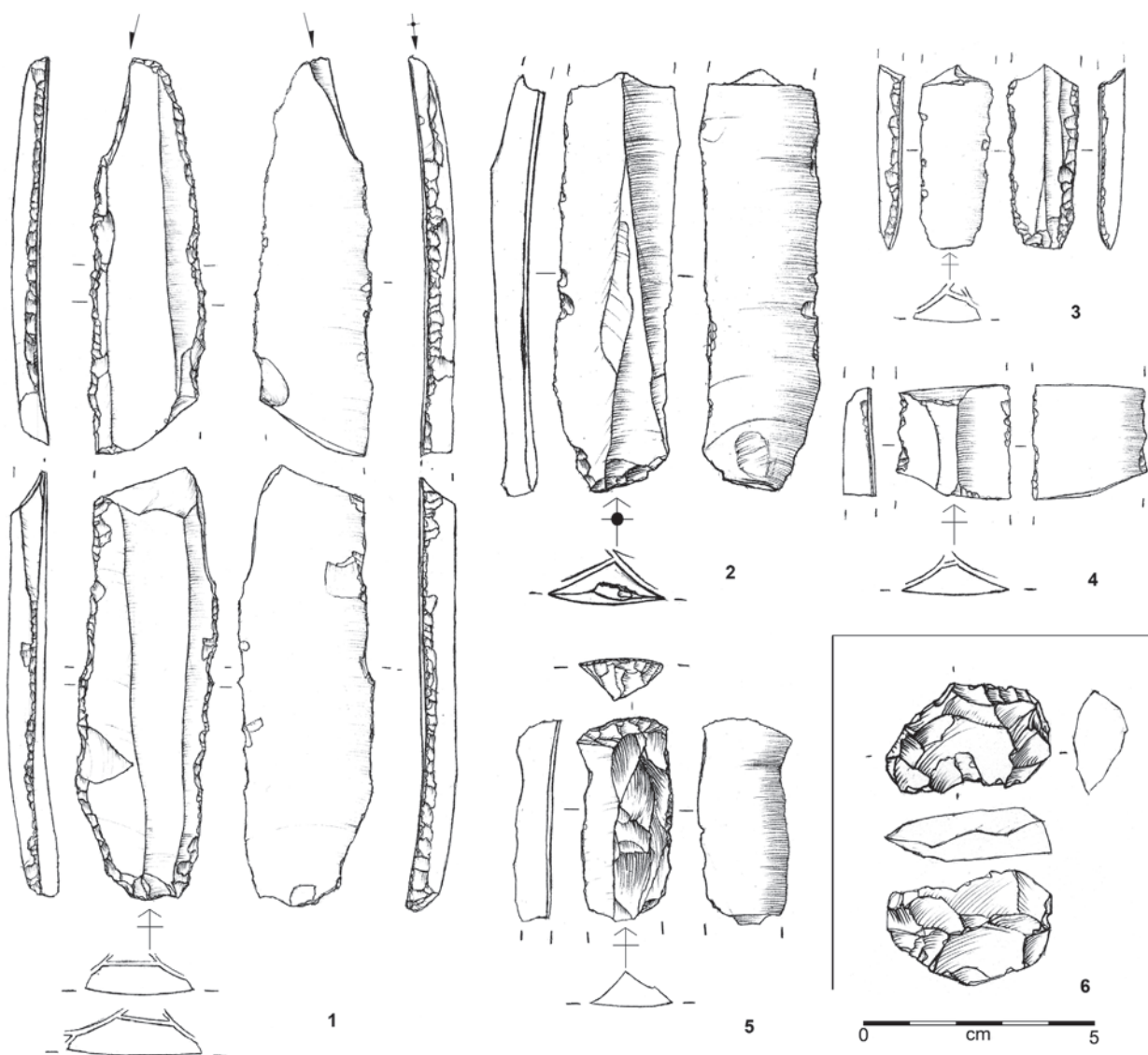


Fig. 16. Obsidian artefacts from Mentesh Tepe. 1–5: Chalcolithic; 6: Kura-Araxes. 1–4: pressure blades; 5: undercrested blade; 6: flake core. 1: obsidian from Chikiani; 2: from Tsaghkunjats; 3: from Arteni; 4: from Gutansar; 5: from Syunik; 6: from Hatis.

preserved, are either faceted (one) or plain (two). Two flakes bear lateral retouch, in one case made by pressure-flaking. Another flake is of high quality and is a composite tool (*pièce esquillée* and lateral retouch made by pressure). The remaining flakes are diverse in morphology and sizes. Three show natural surfaces and one a cortical surface. They are also diverse in typology: burin, lateral retouch, *pièce esquillée*, denticulate, notch, backed piece, and bifacial piece.

TABLE 9. Chalcolithic period. Technological breakdown of the sourced artefacts.

| | Block | Blade core | Flake core | Flake | Blade width < 24 mm | Blade width > 24 mm | Undetermined | Total |
|-----------------|----------|------------|------------|-----------|---------------------|---------------------|--------------|------------|
| Gegham | | 1 | 4 | 28 | 122 | 12 | 5 | 172 |
| Sarıkamış north | | | 2 | 3 | 26 | 2 | | 33 |
| Tsaghkunyats | | | | 1 | 17 | 1 | | 19 |
| Chikiani | | | | 4 | 9 | 3 | 1 | 17 |
| Gutansar | | | 3 | 4 | 5 | 1 | | 13 |
| Syunik | | | | 6 | 1 | | 2 | 9 |
| Arteni | | | | | 4 | | | 4 |
| Hatis | | | | 1 | | | | 1 |
| Khorapor | 1 | | | | | | | 1 |
| Total | 1 | 1 | 9 | 47 | 184 | 19 | 8 | 269 |

Three crested blades were identified, one probably knapped by direct percussion. A plain butt is attested. One of the crested blades was broken because of an incision made prior to the fracture. It was shaped by a truncation. Another crested blade is a *pièce esquillée*. Eighteen lateral blades have been identified, three with a lateral natural surface and the others showing scars resulting from a crest. When the proximal fragment of the blade was preserved, it displayed mostly faceted butts (five) and a punctiform one. The typology is the following: burin, *pièce esquillée*, and *pièce esquillée*/lateral retouch. Two blanks are shaped by pressure-flaking and three show an incision made before the breakage. One blank may have been knapped using a device tipped with copper.

The large number of blades provides information on the true goals of production. The blades are extremely regular, with scars and profiles testifying to highly controlled production by pressure-flaking from prismatic cores. The widths of the blanks lie between 7.7 and 33 mm, with the highest proportion ranging between 12 and 24 mm. The codes are primarily 212'. Among a group of 49 proximal fragments, 38 faceted butts were distinguished; they were usually rectilinear but sometimes concave or convex. Eight butts were damaged or splintered and the rest were reworked by the retouch. The angle of the butt is usually between 80° and 90° but an angle of 60° is also visible. The preparation on the *débitage* surface was lengthy and carefully carried out. The typology is again diverse: burin, *pièce esquillée*, lateral retouch and composite tools such as burin/lateral retouch with or without truncation, *pièce esquillée*/lateral retouch, lateral retouch/truncation, lateral retouch/scrapper and, exceptionally, foliate, point and geometric. It is worth noticing that at least 37 blades displayed a retouch made by pressure-flaking (lateral retouch, scrapper and foliate). The width of twelve of the blades varies between 27 and 33 mm and suggests the possible use of a lever for manufacture. These blades have mainly a 212' or a 321 code. Six butts are faceted; one is concave with traces of ochre, another convex and the rest rectilinear. Their angles range between 80–90°, except for a single blade with a 60° angle. One blade was broken by means of a previous incision. Two blades were shaped by lateral retouch made by pressure-flaking, another by pressure to shape a lateral retouch and a scrapper. A last piece seems to show the scar of a burin spall.

TABLE 10. Chalcolithic period. Typological breakdown of the sourced artefacts. Br, burin; LR, lateral retouch; Tr, truncation; PE, *pièce esquillée*; Geo, geometric; Bo, borer; N, notch; Sc, scraper; Dn, denticulate; Fo, foliate; Bk, back; Bi, bifacial piece; Pt, point; Ir, irregular retouch; Un, unretouched. The presence of sickle elements is not considered here.

| | Br | Br/ LR | Br/ PE | Br/ Tr | Br/ LR/ Tr | Br/ LR/ Sc | Br/ Tr/ LR/ Sc | Br/ Tr/ N | PE | PE/ LR | PE/ LR/ Tr | LR | LR/ Tr | LR/ Sc | LR/ Tr/ Sc | Geo | Tr | Bo | N | Sc | Dn | Fo | Bk | Bi | Pt | Ir | Un | Total |
|--------------------|-----------|-----------|-----------|-----------|------------------|------------------|-------------------------|-----------------|-----------|-----------|------------------|-----------|-----------|-----------|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|------------|
| Gegham | 5 | 8 | | | 2 | 1 | | 1 | 9 | 4 | | 55 | 5 | 7 | | 2 | 1 | 1 | 1 | | 2 | 1 | 1 | 1 | 2 | 32 | 31 | 172 |
| Sarikamış north | 3 | 5 | 1 | 1 | | | | | 2 | | | 7 | | 1 | | | | | | | | | | | | 9 | 4 | 33 |
| Tsaghkunyats | 1 | 2 | | | | | | | 1 | | | | | | | | | 1 | | | | | | | | 7 | 7 | 19 |
| Chikiani | 1 | 1 | | | | | 1 | 1 | 1 | 1 | | | | | 1 | | | | | | 1 | | | | | 5 | 4 | 17 |
| Gutansar | 1 | | | | | | | 3 | 3 | | | 1 | 1 | | | | | | | | | | | | | 4 | 3 | 13 |
| Syunik | 1 | 1 | | | | | | | 1 | | | 2 | | | | 1? | | | | 1 | | | | | 1 | 1 | 1 | 8 |
| Arteni | | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | | | | 4 |
| Hatis | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | 1 |
| Khorapor | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| Total | 12 | 17 | 1 | 1 | 2 | 1 | 1 | 1 | 17 | 4 | 1 | 70 | 7 | 8 | 1 | 3 | 1 | 2 | 1 | 1 | 3 | 1 | 1 | 1 | 3 | 57 | 51 | 269 |

It is possible to argue for the use of a copper tip in the manufacture of the assemblage; this tip was used while pressing on the core's edge. This technique is relevant to 15 blades, including a lateral one. Their widths are between 13 and 31.4 mm. The diagnostic signs are a minimum surface of pressure, a crack seen on the butt, a deep pressure point and/or a tiny scar behind the pressure point. In our sample, 28 blades — including the large blade mentioned above — revealed evidence of a controlled breakage by a previous incision and one is probably a sickle element with pressure retouch on both edges.

Two cores were identified as being from **Sarıkamış North**. One of them was reworked to extract small irregular bladelets. Three scars are visible. The rear part of the core was at least partly shaped. The other one is a flake core for the production of small irregular blanks. It is made on a flake. Two flakes extracted from a blade core and an elongated one are part of this sample. Regarding blade production, there are two lateral blades with natural surfaces and central blades ranging from 8.4 to 25.5 mm in width. The blades have one, two or three ridges. 212' codes are not the most frequent. Butts are predominantly plain (eight) but also linear (one) and punctiform (one). They are at an angle of 80–90°. Among the blanks, seven pieces display a retouch made by pressure-flaking. Eight were fractured in a controlled way, thanks to a preliminary incision. No sickle blade was found in this small collection. The typology is diverse with burins, *pièces esquillées*, lateral retouch, truncation and combined tools.

The sample from **Tsaghkunyats** consists of one flake and 18 blades. The flake is a borer. Among the blades, three are lateral and one is crested. The rest of the blanks are central blades with widths ranging between 12.2 and 25 mm. The types represented are burins, burin/lateral retouch and *pièces esquillées*. One sickle blade was identified. Two pieces were retouched using the pressure technique. Two pieces were fragmented due to a previous incision. Two faceted butts and two plain ones are attested.

Among the flakes from **Chikiani**, one should mention a shaping flake, another with a cortical butt and a natural surface covering more than 50% of the surface area, and another with a residual natural surface. The latter is a denticulate. A burin spall was also documented. A crested blade has a residual natural surface. There is a lateral blade with a lateralised natural surface and another with traces of shaping. The latter was shaped by lateral retouch and was a *pièce esquillée*. Two blades are large, with a width superior to 24 mm. They could have been produced using a lever. One was extensively modified: a burin on truncation, a scraper and a lateral retouch. The rest of blade production has a width between 11.5 and 20 mm. Code 212' is dominant. Butts are usually plain (one), linear (one) or faceted (one) with an angle of 80–90°. The typology of medium size blades is diverse: burins, *pièces esquillées*, lateral retouch and composite tools. Three blanks are broken with a previous incision.

Among the obsidian finds from **Gutansar**, a small core for producing flakes with a maximal length of 33 mm was documented. The angle of the platform is 65° and the knapping was carried out by direct percussion. Traces of random cones of percussion were observed on the surfaces. The second core is roughly conical for the extraction of small irregular flakes. Among six blanks, six show a natural surface: lateralised on blades (two) or flakes (two), on the butt of a blade (one) and on the total of the dorsal face (one). Flake production is either unipolar or crossed. The typology of flakes consists of *pièces esquillées*, lateral retouch and burins. Blade widths range between 14.1 and 24.4 mm. They are knapped by pressure-flaking on prismatic cores. One faceted butt was attested. One of the blades was modified by lateral retouch and a truncation retouched by pressure-flaking.

Among the six flakes coming from **Syunik**, two are shaping flakes and four show a residual natural surface. A lateral blade with scars corresponding to the shaping of the core is visible; it is a scraper. Tools on flakes are: burin, burin/lateral retouch, lateral retouch and a *pièce esquillée*. Two pieces of waste could be fragments of a geometric tool and of a point. An elongated flake may be a sickle element.

In our sample, four blades from **Arteni** were identified. One is a lateral blade with a natural surface. The widths of the blades range between 15 and 16.5 mm. They are knapped by pressure-flaking. Three blades show a lateral retouch and a third has lateral retouch and a truncation. Two of them are retouched by pressure-flaking.

Finally, obsidian from **Hatis** was found in our sample, with a fragment of flake with lateral retouch; likewise, obsidian from **Khorapor** is seen in a poor quality obsidian pebble (25 mm in length).

It is now possible to emphasise differences between the Chalcolithic assemblage and that of the Neolithic period. Firstly, Chalcolithic blades, wherever they come from, are far more regular in shape than the Neolithic ones: pressure-flaking is better controlled and represents a higher level of know-how and skill. Secondly, the typology for the Chalcolithic period includes a greater variety of composite tools. In addition, Gegham obsidian is a highly distinctive feature of the Chalcolithic industry. Finally, several characteristics appear more frequently in this context: faceted butts, the presumed use of a copper tip for pressure-flaking in some cases, the presumed breakage of blanks using an incision to prepare the split in some cases, and the frequent use of pressure retouch.

The only block of raw material found inside living spaces of the Chalcolithic levels is a small pebble from the Khorapor source. It is unworkable and contrasts with the other obsidian sources, which seem to have been acquired in primary position on the basis of cortex quality and the natural surfaces visible on the artefacts.

The only blade core that was sourced was made from a piece of Gegham obsidian. It was intentionally damaged and reflects a poor skill level that does not correspond to the predominant reduction sequences observed in the Chalcolithic phases, which were marked by controlled and skilled productions. Flake cores are made from three raw material sources: Gegham, Sarıkamış North and Gutansar. They are knapped with direct percussion to produce small irregular flakes and reflect expedient technologies. Flakes are documented for all raw material sources except Arteni and Khorapor. Among the flakes, it is worth noticing that shaping flakes are manufactured from Gegham, Syunik and Chikiani obsidians.

As was the case for the Neolithic industry, technology was highly homogeneous, regardless of the obsidian source, with the exception of Khorapor and Hatis, which were represented by only two artefacts. The exploitation of prismatic cores following a semi-turning or turning mode is well attested. Pressure by leaning on a crutch in standing position seems to be the most frequent technique: blades with a width inferior to 24 mm are attested on all raw materials. Some, if not all, of the 17 blades with a width over 24 mm may have been detached by pressure using a lever. These large blades were made with different raw materials (Gegham, Sarıkamış North, Chikiani and Gutansar). Crested blades and/or laterally shaped blades were manufactured from Gegham, Tsaghkunyats and Chikiani obsidians.

The use of a copper tip for pressure-flaking is presumed so far only in the case of Gegham obsidian (15 examples) but our data is too limited for the other obsidians. Faceted butts are present on

Gegham material (44) and to a lesser extent on Gutansar (1), Chikiani (1) and Tsaghkunyats (2) obsidians. The use of an incision to prepare the breakage was identified on several pieces of raw material (Gegham, Sarıkamış North, Tsaghkunyats and Chikiani). The use of pressure retouch was identified on all obsidian sources, except for Hatis and Khorapor.

At Mentesh Tepe, obsidian procurement was not exclusively related to the production of stone tools. Obsidian was also used as a temper in pottery during the second phase of the Chalcolithic occupation. Obsidian-tempered ceramics do not exceed around five per cent of the entire Chalcolithic ceramic assemblage.⁴³ 78 obsidian inclusions coming from 47 sherds were analysed. The results point to six different sources for them. The main one is Gegham (52 inclusions) but Syunik, Tsaghkunyats, Gutansar, Chikiani and Sarıkamış are also represented. The fact that the obsidian temper is from the same sources as those used for the lithic artefacts suggests that the two production spheres were in direct correlation. Moreover, in several cases, the obsidian inclusions contained in a single sherd came from different sources. This suggests that the obsidian temper used by the potters was produced *in situ* by crushing and recycling the lithic waste generated during daily activities or produced in knapping areas or workshops.

The Kura-Araxes Assemblage

Only scarce data concerning the Kura-Araxes assemblage is available. A lithic scatter corresponding to the knapping of a large block is most probably associated with the Kura-Araxes phase.⁴⁴ The block originates from **Chikiani**. It was knapped directly without any preparation or shaping, producing 'slices' that ended up in flakes with residual cortex. A second concentration of chipped stones is related to the same phase. A large cylindrical block (150 × 92.4 × 70 mm) was knapped with the same method: production of 'slices' ending up in flakes with residual cortex. This block also originates from **Chikiani**.

Unfortunately, most of the chipped stones that were linked to the Early Bronze Age are mixed with older material. At least four flake cores seem to be typical of the Kura-Araxes. They were knapped to produce flakes following discoid exploitation. Two come from **Chikiani**, one from **Gegham** and one from **Hatis** (Fig. 18: 6). However, it was not possible to identify any obsidian tool that could be securely associated with this period. This is plausibly because there was no real occupation at the site at that time, being mainly used for individual graves and for two kurgans with collective inhumations.

Although limited, the sample clearly shows that during the Early Bronze Age obsidian procurement and *chaînes opératoires* were very different from those of the Neolithic and Chalcolithic periods. Chikiani probably became the major source of procurement. Obsidian was brought to the site, at least partly, in the form of large blocks that were knapped *in situ*. The presence of small cores made on Chikiani, Gegham and Hatis obsidian indicate that blocks, even prepared ones, were also brought to Mentesh Tepe for the local production of flakes. Pressure-blade productions are no longer attested during this period.

⁴³ Palumbi *et al.* 2018.

⁴⁴ Lyonnet *et al.* 2012a, p. 173.

Discussion

Most of our discussion below will focus on the Neolithic and Chalcolithic periods, since we have little data for the Early Bronze Age. As explained, the industries are in both cases predominantly represented by blades knapped by pressure-flaking on prismatic cores, with a semi-turning or turning exploitation. The assemblages are of good quality and were probably produced by specialists. Evidence of *in situ* knapping is rare, indicating that workshops were mainly outside the excavated areas. The skill and know-how shown in shaping were greater for large cores; high skill was also required for the application of pressure using a lever. The know-how and skills of the knappers were the result of lengthy apprenticeships. These specialised craftsmen may have manufactured tools for several communities or villages, because the volume of production for each of them was not necessarily high. At Mentesh Tepe, for instance, the obsidian for the two Neolithic levels amounts to only 7.5 kg. Considering the fragmentation, we estimate the raw material for production to be twice as much, *c.* 15 kg. In our procurement model, this represents only half of the load carried by one hiker on a single trip. Of course, we cannot exclude that the scarcity of the lithics recovered could be the result of cleaning practices in living spaces, waste management, or a reflection of the restricted area of excavation compared to the original size of the Neolithic settlement lying under the modern village. Nevertheless, one should bear in mind that, although there is no doubt concerning the circulation of obsidians, the volumes transported were perhaps more restricted than is sometimes presumed.

Eight obsidian sources were exploited at Mentesh Tepe during the Neolithic period and the procurement covered a large territory that included Eastern Anatolia, Armenia and Georgia. One might have expected a large diversity of technical and typological practices from one raw material to another or from one source region to the other. However, a rather high homogeneity of technological and typological markers was identified, regardless of where the obsidian came from. This might indicate that the different knappers belonged to a single knapping tradition and shared the same cultural background.

In the last twenty years, research on the Shomu-Shulaveri settlements in different regions has increased in intensity. In the Middle Kura Valley, a cluster of neighbouring sites was excavated (Mentesh Tepe, 9 km from Kiçik Tepe, 12 km from Hacı Elamxanlı Tepe, and 11 km from Göytepe), although these sites are not strictly contemporaneous. Hacı Elamxanlı is the earliest, and its recent levels 1–2 correspond to the earlier phase 3 at Kiçik; the following phase 2 at Kiçik is contemporaneous with Mentesh Period I, phase 1; Mentesh Period I, phase 2 corresponds to Göytepe's most ancient layers; the rest of the Göytepe sequence comes next (Table 11).⁴⁵ For other regions, the sites with published lithic data are the following: in southeast Georgia, Aruchlo;⁴⁶ in the Ararat plain of Armenia, Akhnashen,⁴⁷ Aratashen,⁴⁸ Masis Blur⁴⁹ and Tsaghkunk.⁵⁰ Further to the east and outside the Shomu-Shulaveri culture, there are the Mil plain,⁵¹ Kamiltepe and other sites and in Nakhchivan, Kültepe I.⁵²

⁴⁵ Nishiaki *et al.* 2015; Kadowaki *et al.* 2014; Nishiaki and Guliyev 2020; Lyonnet *et al.* 2017; Palumbi *et al.* 2021.

⁴⁶ Hansen *et al.* 2006, p. 200; Hansen and Mirtskhulava 2017.

⁴⁷ Badalyan and Harutyunyan 2014; Badalyan *et al.* 2010.

⁴⁸ Badalyan *et al.* 2004b, 2007.

⁴⁹ Martirosyan-Olshansky *et al.* 2013.

⁵⁰ Petrosyan *et al.* 2018.

⁵¹ Helwing and Aliyev 2017.

⁵² Marro *et al.* 2019.

TABLE II. Mentesh Tepe, K     Tepe, Hacı Elamxanlı Tepe, G  ytepe: radiocarbon dates.

| | Mentesh Tepe | Hacı Elamxanlı Tepe | K     Tepe | G  ytepe |
|------|--------------|---------------------|------------|----------|
| 5450 | | | | |
| 5500 | | | | |
| 5550 | | | | |
| 5600 | | | | |
| 5650 | | | | |
| 5700 | Period I 2 | | | |
| 5750 | | | | |
| 5800 | Period I 1 | | Phase 2 | |
| 5850 | | | Phase 3 | |
| 5900 | | | | |
| 5950 | | | | |
| 6000 | | | | |

In recent years, the use of pXRF with its characterisation of larger samples led to a drastic change in the sampling strategies for the search of obsidian sources: 901 artefacts for G  ytepe and 206 for Masis Blur were analysed.⁵³ Our study is based on a mix of XRF and LA-ICP-MS techniques and large samples for the Neolithic (n=165) and Chalcolithic (n=269) periods were also analysed. Such approaches were helpful in better reconstructing the procurement strategies of these ancient communities. For both periods, the results show a poly-source model of exploitation. This is unsurprising, as all studies carried out on south Caucasian assemblages reached the same conclusion. This was notably the case at Kmlo 2, as early as the tenth to eighth millennium,⁵⁴ and later at all Shomu-Shulaveri sites: Hacı Elamxanlı,⁵⁵ K     Tepe,⁵⁶ G  ytepe,⁵⁷ Aratashen,⁵⁸ Aknashen,⁵⁹ and Masis Blur,⁶⁰ as well as at Kamiltepe and other Neolithic sites of the Mil plain.⁶¹ Moreover, they show

⁵³ Nishiaki *et al.* 2019b; Martirosyan-Olshansky 2018a.

⁵⁴ Arimura *et al.* 2010; Chataigner and Gratuze 2014b.

⁵⁵ Y. Nishiaki, personal communication June 2020.

⁵⁶ Palumbi *et al.* 2021.

⁵⁷ Nishiaki *et al.* 2019b; Nishiaki and Guliyev 2020.

⁵⁸ Badalyan *et al.* 2007.

⁵⁹ Badalyan *et al.* 2010.

⁶⁰ Martirosyan-Olshansky 2018a.

⁶¹ Guilbeau *et al.*, forthcoming.

that the southern Caucasus communities developed their own obsidian trade and exploitation networks, distinct from the Mesopotamian and Iranian ones.⁶² Differences were also observed between regions, with a prevalence of Sarıkamış for the most ancient sites of the Middle Kura Valley, Arteni and Gutansar for the Ararat plain, and Syunik and Gegham for the Mil plain.

The long-distance model proposed by C. Renfrew⁶³ cannot be applied to Mentesh Tepe and neighbouring sites.⁶⁴ At Mentesh Tepe, Sarıkamış obsidian largely prevailed in the Neolithic lithic assemblage. Sarıkamış lies in a faraway region and circulation over such distances is surprising, as many excellent obsidian sources are located closer to Mentesh Tepe — for instance, Gutansar and Hatis, which are poorly exploited. This choice may indicate diffusion via exchange rather than direct sourcing. The situation echoes the results obtained for the earliest levels at Göytepe (levels 14–8) and for Hacı Elamxanlı, where northeastern Anatolian obsidians (Sarıkamış, Kars Akbaba) are also predominant. However, while Sarıkamış obsidian is present at Kızık Tepe, it comes only second after the Chikiani source, although the sample is rather small at the present stage of the study.

At Göytepe, Y. Nishiaki⁶⁵ tried to determine whether there was a relationship between the number of finished artefacts and these remote sources but saw no differences with other closer ones. At Mentesh Tepe, there is also no difference in the technological nature of the assemblage according to source: finished products are the most common (predominantly blades), while cores (especially blade cores) are rare and technical pieces are scarce. The main *chaîne opératoire* concerns the production of blades from prismatic cores knapped by pressure-flaking. The technique could vary according to the size of the desired products: pressure using a crutch in a sitting position, pressure using a crutch in a standing position (the most widely used), or pressure using a lever. The tip of the pressure device was made of an antler point, although a copper point is not excluded on rare occasions. The preparation of the cores and the platform, as well as the correction of the overhang before the detachment of blades, is always carefully done. It is difficult to know which part of the *chaîne opératoire* was carried out at the site, because *in situ* knapping has hardly been identified at Mentesh Tepe. This activity could have occurred at locations anywhere between the sources and the site and the raw material could thus have been introduced to the site as preforms or as cores at any stage of production — even as finished blades. Nearly all the primary phases of core exploitation, such as the removal of cortex and shaping, are missing. Moreover, and in contrast with Göytepe and Hacı Elamxanlı, blade cores are almost absent at Mentesh Tepe. Quite the contrary, there is evidence of local knapping of obsidian and chalcedony flakes. This observed dichotomy, with a predominant blade production on one side and a minor production of flakes on the other, is traceable in all the published data relating to the other Shomu-Shulaveri sites.

The recently excavated Damjili Cave⁶⁶ shows that the use of pressure-flaking was already in existence during the Mesolithic period (Unit 5) and continued in the Neolithic (Unit 4). Pressure-flaking, probably including pressure using a lever, is part of the Neolithic package. The peculiar morphology of the cores, the method of knapping, and the use of pressure-flaking point to a common technical tradition among the Shomu-Shulaveri knappers, notably identified at Hacı Elamxanlı,

⁶² Arimura *et al.* 2010; Nishiaki *et al.* 2019b.

⁶³ Renfrew *et al.* 1968; Renfrew and Bahn 2008.

⁶⁴ Nishiaki *et al.* 2019b.

⁶⁵ Nishiaki *et al.* 2019b.

⁶⁶ Nishiaki *et al.* 2019a.

Kiçik Tepe, Göytepe, Aruchlo, Aratashen and Akhnashen. It is also known in the Mil plain. The sole exception in the southern Caucasus could perhaps be Kültepe I,⁶⁷ where pressure-flaking has not yet been recognised. Indirect percussion is observed at Aknashen and Aratashen, where it was applied for the preparation of products integrated into the *chaîne opératoire* of blade production by pressure-flaking.

A precise diagnosis of operational techniques allowed us to observe the presence of different types of pressure. They include pressure with a lever at:

- Mentesh Tepe, possibly on Sarıkamış, Tsaghkunyats, Chikiani and Yağlıca obsidians;
- Kiçik Tepe,⁶⁸ probably on obsidians from Chikiani 2, Sarıkamış North, Tsaghkunyats 1 and Gegham;
- Göytepe;⁶⁹
- Aratashen;⁷⁰
- Aknashen;⁷¹
- Masis Blur;⁷²
- Tsaghkunk;⁷³
- Aruchlo;⁷⁴
- Various sites on the Mil plain,⁷⁵ including Qarabel Tepe: two blades from Gegham and Syunik; MPS86: one blade from Gegham; and possibly (with a width between 24 and 28 mm) Kamiltepe: one blade from Gegham; MPS04: one blade from Gegham; MPS103: one blade from Syunik; MPS05: one blade from Syunik.

Pressure-flaking by means of a lever is the technique requiring the greatest skill. It originated from Eastern Anatolia at the end of PPNB (around 7500–7300 BCE). An important benchmark for this technique is known at Sabi Abyad in Upper Mesopotamia around 6200 BCE. A diffusion of the technique from this region to the southern Caucasus is probable.⁷⁶

Following a gap in occupation at the site, important transformations occurred at Mentesh Tepe during the Chalcolithic period. Circular architecture disappeared and was replaced at first by ephemeral buildings and later by well-planned rectangular, possibly tripartite, constructions. Obsidian was still very commonly used at that time, not only for tools but also as temper for specific pots, although metal production of small items also developed.⁷⁷

However, a radical change in sources of obsidian should be emphasised. Following the use of the Sarıkamış and Tsaghkunyats sources during the Neolithic period, nine different procurement zones were exploited in the Chalcolithic period. Gegham became largely prevalent, pointing to new pathways to the south in the direction of Lake Sevan. The dramatic shift in the supply source

⁶⁷ Marro *et al.* 2019.

⁶⁸ Palumbi *et al.* 2021.

⁶⁹ Nishiaki 2020.

⁷⁰ Badalyan *et al.* 2007; Chabot *et al.* 2009; Chabot and Pelegrin 2012.

⁷¹ Varoutsikos and Petrosyan 2019; Chabot *et al.*, forthcoming.

⁷² Martirosyan-Olshansky 2018a.

⁷³ Petrosyan *et al.* 2018.

⁷⁴ Gatsov and Nedelcheva 2017; L. Astruc, personal observation.

⁷⁵ Guilbeau *et al.*, forthcoming.

⁷⁶ Altınbilek *et al.* 2012.

⁷⁷ Courcier *et al.* 2017.

of obsidian revealed at Mentesh Tepe, from the main source of Sarıkamış in the Neolithic (c. 5900–5600 cal BCE) to that of Gegham in the Chalcolithic period (c. 4800–4100 cal BCE), was also noticed at the neighbouring site of Göytepe, where it occurred during the sixth millennium. In the lower levels of Göytepe (levels 14–8, c. 5650–5520 cal BCE), the obsidian comes mainly from Sarıkamış (52.6 per cent) and Tsaghkunyats (17.1 per cent) in proportions similar to those of Mentesh I. In the upper levels of Göytepe (levels 7–5, c. 5520–5450 cal BCE), however, obsidian from these sources diminishes abruptly (12.7 per cent for Sarıkamış and 9.1 per cent for Tsaghkunyats), most of the volcanic glass now being from Gegham (55.8 per cent).⁷⁸ Therefore, in the Tovuz region, where Mentesh Tepe and Göytepe are located, a dramatic change of obsidian supply source from Sarıkamış to Gegham probably took place in the mid-sixth millennium, shortly after the abandonment of Mentesh Tepe. The reasons for this change are still unknown but at Göytepe it was not accompanied by any perceptible difference in strategies for working the material.⁷⁹

At Mentesh Tepe, the Gegham obsidian source is the hallmark of the Chalcolithic industry. Despite a hiatus of 800 years, all obsidians, regardless of origin, were worked according to the same standard. Production was based on the pressure-flaking technique, implemented on prismatic cores exploited with a semi-turning or turning mode. Although pressure with a crutch in a standing position was predominant, pressure by means of a lever was also attested on Gegham, Chikiani and Syunik obsidians. The blades became far more regular than the Neolithic ones: pressure-flaking was better controlled and reflects a higher level of know-how and skill. Here again, knappers were specialists. However, as in previous periods, remains of *in situ* knapping are scarce and consist only of a few shaping flakes. Thus, the raw material was introduced in living spaces mainly as finished products (blades). They may have been knapped, as during the Neolithic period, at any stage in the diffusion of the raw material, from workshops directly at the sources to others situated in the immediate vicinity of the excavated area. Among the recovered material, we noticed only one blade core marked by coarse exploitation, differing from the main production by its poor skill level. Along with obsidian artefacts, chalcedony flakes, as well as flint flakes and blades were also discovered. The latter were knapped using pressure-flaking on prismatic cores. Pressure using a lever was also attested on flint. Finally, it was possible to identify rare flint artefacts knapped by indirect percussion, which are by-products of blade production through pressure-flaking.

Comparisons with other south Caucasus Chalcolithic sites are difficult, since only fragmentary data are published and sites are chronologically scattered within this period or of unknown precise date. At Ovçular Tepesi in Nakhchivan, pressure-flaking is attested,⁸⁰ as it is at Aknalich in Armenia.⁸¹ At the Getahovit cave in Armenia, flakes knapped by direct percussion and splinters predominate, while a few blades and bladelets knapped by pressure have been identified. Flakes and splinters come from Arteni, Gutansar, Gegham and Tsaghkunyats, and blade(let)s from Chikiani and Sarıkamış. Flakes and splinters were knapped at the site, whereas blades were probably introduced as finished products.⁸² In Georgia, at Tsiteli Gorebi,⁸³ obsidians came from Gegham,

⁷⁸ Nishiaki *et al.* 2019b, pp. 3–14.

⁷⁹ Nishiaki *et al.* 2019b, p. 14.

⁸⁰ Marro *et al.* 2011; Thomalsky 2017.

⁸¹ Muradyan 2014.

⁸² Chataigner *et al.* 2020, p. 6.

⁸³ Badalyan *et al.* 2004a; Varazashvili 1992; Rova 2018.

Tsaghkunyats and an unknown source. In Armenia, at Godedzor (mid-fourth millennium), 21 artefacts were analysed. Obsidians (Sevkar, 71 per cent; Mets Satanakar, 29 per cent) were mainly acquired in a secondary context in the Vorotan River.⁸⁴ In contrast, large lithic pieces — cores deposited in a cache — found at the site are leftovers of larger blocks acquired directly in primary contexts on the neighbouring high plateau or traded with local populations.

In this discussion, we wish to emphasise the dichotomy in production between the Neolithic and Chalcolithic periods, on the one hand, and the Early Bronze Age on the other. The first two periods were characterised by specialised blade production knapped by pressure-flaking, while the last phase consisted of crude productions of flakes by hard direct percussion. As far as can be seen, the disappearance of pressure blades in the Bronze Age was concomitant with a change in obsidian procurement, now mainly oriented towards the Chikiani sources. It is worth noticing, however, that Early Bronze Age lithic production is not always expedient; some artefacts reflect high technical value, relating not to the modes of production of the blanks themselves but to the way retouch was applied. Flakes with a careful retouch by pressure-flaking are present in the assemblages. At Mentesh Tepe, for instance, large denticulated sickle elements (made of siliceous rocks but not of obsidian) were produced on flakes retouched bifacially by pressure. Such pieces are echoed at several Caucasian sites (Gel Yeri;⁸⁵ Makhta I,⁸⁶ Kohne Tepesi).⁸⁷ At other sites, arrowheads or daggers retouched by pressure are also known (Bedeni,⁸⁸ Tsaghkasar,⁸⁹ Ananauri).⁹⁰

Prior to any conclusions, it seems important to consider the analysis of pathways from Mentesh Tepe to the obsidian sources to better understand the position of these Neolithic and Chalcolithic settlements in the landscape and the way territories were used by inhabitants. Two hypotheses can be advanced to explain the acquisition of obsidian: either direct, during a planned trip to the source of obsidian or as part of other activities such as hunting or transhumance, or indirect via exchange with other groups.

The main obsidian sources exploited by the inhabitants of Mentesh Tepe during the Neolithic and Chalcolithic periods — Sarıkamış (respectively 53.9 per cent and 12.3 per cent), Tsaghkunyats (33.9 per cent and 7.1 per cent), Chikiani (7.9 per cent and 6.3 per cent) and Gegham (1.2 per cent and 63.9 per cent) — are all located at high altitudes in regions heavily covered by snow in winter. These four sources, accessible only in summer, lie in pasturelands, where many transhumant shepherds nowadays bring their herds.

The GIS-modelled distance-time numbers indicate that 13 to 16 days would have been needed for transhumant groups to reach the sources of Chikiani, Tsaghkunyats and Gegham. A travel time of 16 days for present-day transhumance was observed in the region of the Pyrenees in southwest France,⁹¹ as well as in the Caucasus for herds moving from winter pastures in Kakheti in eastern

⁸⁴ Chataigner and Gratuze 2014b, pp. 63–64.

⁸⁵ Hüseyinov 2013.

⁸⁶ Aşurov *et al.* 2012.

⁸⁷ Jayez *et al.* 2017.

⁸⁸ Gobedzhishvili 1980.

⁸⁹ Hovsepyan and Mnatsakanyan 2011.

⁹⁰ Makhharadze *et al.* 2016; Biagi *et al.* 2017.

⁹¹ Days 2011, p. 7.

Georgia to summer pastures in the high upland plateaus of Kvemo Kartli and Samtskhe-Javakheti.⁹² The hypothesis of the practice of transhumance as a means of direct acquisition at the obsidian deposits is therefore plausible.

However, in the case of Mentesh Tepe, the first reliable results available from diet analyses tend to show that herding activity, including mobility, developed mostly during the Chalcolithic period.⁹³ At this site, the preliminary archaeo-zoological studies so far indicate that the herd was mainly made up of sheep and goats, with cattle representing 12 per cent of the livestock and pigs, nine per cent.⁹⁴ This suggests a form of pastoralism in which the livestock, or more often a fraction of it, was kept year-round on pastureland, sometimes quite far from the settlement, and tended by herdsmen specifically assigned to this task, while the majority of the population led a sedentary life and was engaged in agriculture.⁹⁵

At the neighbouring site of Göytepe, where the composition of the herd is similar, carbon and oxygen isotope analyses show that some of the Neolithic goats and sheep may have grazed in the vicinity of the lowland site throughout the year, while other Neolithic goats and cattle exhibited different isotope patterns, which may have been caused by various factors, including vertical transhumance.⁹⁶

The same hypothesis was formulated for the Neolithic sites of the Ararat plain (Aratashen, Aknashen), where a form of semi-transhumance probably took place, with part of the population remaining in place to carry out agricultural work and another moving the herd to summer pastures: an absolute necessity in the plain of Ararat because of heat and drought in summer.⁹⁷ This region is subject to a continental, semi-desert climate and in summer the pasture grasses are desiccated and unfit for feeding herds.

The dissemination of technological know-how between sites of the South Caucasus bears witness to contact and exchange with other populations, allowing for the indirect acquisition of artefacts and raw materials. Concerning the deposits of Sarıkamış, the distance–time figures are clearly higher than for the other sources of obsidian and the hypothesis of transhumance to this region is difficult to maintain. However, these deposits were the most exploited at Mentesh Tepe during the Neolithic period.

The hypothesis of exchange with populations present in the region of Sarıkamış during the summer, whether they practiced transhumance from the valleys of the upper Euphrates or the upper Tigris (as is the case today, according to ethnographic studies)⁹⁸ or lived *in situ*, may therefore be valid. No site of the first half of the Holocene has been exposed in this region but the deposits of Sarıkamış were known to populations of hunter-gatherers at the end of the Pleistocene (Bondi cave, in Georgia)⁹⁹ and the beginning of the Holocene (Kmlo 2, in Armenia).¹⁰⁰

⁹² Jarman *et al.* 2011, p. 34.

⁹³ Herrscher *et al.* 2018.

⁹⁴ Benecke 2017, p. 360.

⁹⁵ Benecke 2017, pp. 368–369.

⁹⁶ Hirose *et al.* 2021.

⁹⁷ Mkrtumyan 1974; Chataigner and Gratuze 2014a, 2014b.

⁹⁸ Thevenin 2014.

⁹⁹ Le Bourdonnec *et al.* 2012.

¹⁰⁰ Chataigner and Gratuze 2014b.

Mobility, exchange and social interaction are integral components of hunter-gatherer life¹⁰¹ and travel over long distances may have been linked to acquisition of specific materials or to seasonal rites of aggregation.¹⁰² In the South Caucasus, numerous Mesolithic sites have been identified, the most recent ones dating from the seventh millennium: Lernagog in Armenia in the Ararat plain¹⁰³ and Damjili in Azerbaijan, situated in the eastern foothills of Avey Mountain.¹⁰⁴ Interactions between these populations and the Neolithic villages could have taken place at the end of the seventh and in the early sixth millennium.

The Neolithic transformation of the South Caucasus appears to have been a complex process, which remains to be understood. However, recent genetic analyses¹⁰⁵ show that the Neolithic population of Mentesh harbours genetic affiliations with neighbouring groups from both Iran (Ganj Dareh Neolithic) and the Caucasus (Georgian hunter-gatherers), but also with the Anatolian farmers to the west. The Neolithic transformation pattern of the Kura Basin then taking shape could have involved a combination of local hunter-gatherers and groups of farmers whose origins remain to be defined, because the absence of genetic data from Mesopotamia biases results. However, some of the analogies in material culture between the Shulaveri-Shomutepe culture and southwestern Asia point to the Upper Euphrates region.¹⁰⁶ Given the presence of a large paleo-lake in the middle valley of the Araxes at this period,¹⁰⁷ the routes to the Caucasus would have had to pass further west, through the region of Sarıkamış, which then remained a privileged source of obsidian for the first populations settled in the eastern part of the Kura Basin.

In the case of Mentesh Tepe, since the acquisition of obsidian from Sarıkamış and Tsaghkunyats appears to be related, a hypothesis for an exchange location that enabled the redistribution of obsidian from the Sarıkamış deposits can be suggested: the Aragats Mountain, which rises near the Tsaghkunyats Range, may have been a gathering place at the end of the Neolithic, as shown by recent excavations carried out on the site of Karmir Sar, where large carved stones (*vishaps*) were set up in ditches. Pieces of charcoal retrieved from the ditches were dated to the end of the sixth and the fifth millennia.¹⁰⁸ This place and several similar ones, located around the Aragats, were clearly used as points of assembly for communities belonging to the same regional group.¹⁰⁹

Conclusion

Data on lithic production is largely homogenous among the Shomu-Shulaveri sites, with a prevalence of the pressure-flaking technique implemented on prismatic cores. These methods and techniques were apparently shared by several specialist knappers, all trained in the same way and probably

¹⁰¹ Lovis *et al.* 2006.

¹⁰² Sulgostowska 2006.

¹⁰³ Arimura *et al.* 2018.

¹⁰⁴ Nishiaki *et al.* 2019a.

¹⁰⁵ Skourtanioti *et al.* 2020.

¹⁰⁶ Özdoğan 2018.

¹⁰⁷ Karakhanyan *et al.*, forthcoming.

¹⁰⁸ Hnila *et al.* 2019, p. 293.

¹⁰⁹ Hnila *et al.* 2019, p. 299.

producing tools for several communities. This suggests that these craftsmen, originating from one or several communities situated on the routes of obsidian distribution, were part of the same technical tradition and that they shared cultural features. The typology of the tools shows similarities as well. Lithic production did not reflect cultural diversity of any sort.

A large number of obsidian sources are present at all southern Caucasus sites. Distances for procurement demonstrate the high mobility of at least some people and connections with a large network of exchange. This mobility can also be related to the presence in the landscape of other resources, such as chalcedony, salt or metal ores, or to social meeting points. Vertical pastoralism is not proven in the Neolithic period but is present during the Chalcolithic.

The way in which the procurement was organised cannot yet be reconstructed, since few excavations and geochemical studies have been carried out at sites between the obsidian sources and Mentesh Tepe. What is known through other studies — for instance, those focusing on the diffusion of Bedoulian flint in Chassey communities in the South of France and in Spain — is the complexity of lithic management in the case of only one source of raw material.¹¹⁰ Our data shows that raw materials collected in different geological contexts, sometimes located at considerable distances, were exploited in the same way by a small group of specialists, as if the source of the raw material did not matter to the producers and users of the artefacts.

There are, however, some limitations to the homogeneity of the lithic records within the Shomu-Shulaveri culture. Each site seems to have had its own procurement strategy. Regional differences were referred to above but the reality is more complex and comparisons between sites point to differences in obsidian provenance for each site. This is the case even within neighbouring sites of the Middle Kura Valley. The territories travelled and exploited are thus distinct. For instance, one of the specificities of the Kura Valley sites is their relative proximity to the Chikiani sources in Georgia. Although this is the major geochemical group at Kiçik Tepe, at least at this stage of our study, it is not the case at Mentesh Tepe and Göytepe, where Chikiani is present only in small quantities. The homogeneity of the Shomu-Shulaveri culture has been a matter of much recent debate. Studies on its material culture highlighted the specificity of its pottery,¹¹¹ architecture¹¹² and fauna.¹¹³ It is now clear that lithic industries contribute new elements to this discussion and are relevant for a better understanding of the Shomu-Shulaveri culture. Moreover, Mentesh Tepe has also provided important data for the Chalcolithic period of the Middle Kura Valley. It is worth noticing that the Chalcolithic lithic assemblage, despite a chronological hiatus of *c.* 800 years, displays some continuity with that of the Neolithic period in terms of both technology and typology, although many other cultural features testify to strong differences with the past, especially architecture.¹¹⁴ An instance of continuity lies in blade production knapped by pressure-flaking, which remained the major feature of the lithic industry. By contrast, this highly skilled technology disappeared in the Early Bronze Age with a break of *c.* 500 years. During this period, lithic artefacts became less frequent, while metal production continued to develop.¹¹⁵

¹¹⁰ Gassin *et al.* 2011.

¹¹¹ Lyonnet 2017a, 2017b.

¹¹² Baudouin 2018.

¹¹³ Berthon 2014.

¹¹⁴ Lyonnet 2017a.

¹¹⁵ Courcier *et al.* 2017.

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Appendix: The Chronologically mixed contexts

| | Block | Flake core | Flake | Blade width < 24 mm | Blade width > 24 mm | Undetermined | Total |
|--------------------|-----------|------------|-----------|------------------------|------------------------|--------------|------------|
| Gegham | I | 4 | 18 | 65 | 7 | 5 | 99 |
| Sarıkamış north | | I | 7 | 52 | | 3 | 64 |
| Sarıkamış south | | I | | 10 | | | 11 |
| Tsaghkunyats | | | 7 | 25 | I | I | 34 |
| Chikiani | I | 9 | I | 8 | | | 19 |
| Gutansar | 9 | | I | 7 | I | 2 | 11 |
| Khorapor | | | | | | I | 10 |
| Syunik | | I | 3 | 4 | | | 8 |
| Hatis | | I | | I | | | 2 |
| Yağlıca | | | I | I | | | 2 |
| Arteni | | | | | | I | I |
| Total | 11 | 17 | 38 | 173 | 9 | 13 | 261 |

Table 1. Chronologically mixed contexts. Technological breakdown of the sourced artefacts.

| | Br | Br/ LR | Br/ PE | Br/ PE/ LR | Br/ Sc | PE | PE/ LR | LR | LR/ Tr | LR/ Sc | LR/ N | LR/ Dn | Tr | Bo | N | Sc | Dn | Bk/ Tr | Bi | Pt | T | Ir | Un | Total |
|--------------------|-----------|-----------|-----------|------------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|-----------|-----------|------------|
| Gegham | | 4 | I | | I | 5 | I | 22 | 5 | 3 | | | | I | | I | I | I | 3 | 3 | I | 24 | 23 | 100 |
| Sarıkamış north | 7 | 7 | I | | | 3 | | 8 | 2 | | | | | | I | | | | | | | 19 | 16 | 64 |
| Sarıkamış south | I | I | | | | I | | I | | | | I | | | I | | | | | | | 2 | 3 | 11 |
| Tsaghkunyats | I | | | | | 3 | | 7 | | | I | | I | | | | | | | | | 14 | 6 | 33 |
| Chikiani | | I | | | | 2 | | I | I | | | | | | | | | | | | | 5 | 9 | 19 |
| Gutansar | I | | | | | I | | | I | | | | | I | | | | | | | | 4 | 3 | 11 |
| Khorapor | | | | | | I | | | | | | | | | | | | | | | | | 9 | 10 |
| Syunik | | | | I | | | | I | | | | | | | | I | | | | | | | 5 | 8 |
| Hatis | | | | | | | | | | | | | | | | | | | | | | | 2 | 2 |
| Yaglıca | I | | | | | I | | | | | | | | | | | | | | | | | | 2 |
| Arteni | | | | | | | | | | | | | | I | | | | | | | | | | I |
| Total | 11 | 13 | 2 | I | I | 17 | I | 40 | 9 | 3 | I | I | I | 3 | 2 | 2 | I | I | 3 | 3 | I | 68 | 76 | 261 |

Table 2. Chronologically mixed contexts. Typological breakdown of the sourced artefacts. Br, burin; LR, lateral retouch; Tr, truncation; PE, *pièce esquillée*; Bo, Borer; N, notch; Sc, scraper; Dn, denticulate; Bk, back; Bi, bifacial piece; Pt, point; T, tang; Ir, irregular retouch; Un, unretouched. The presence of sickle elements is not considered here.

Among the 261 analysed artefacts (Tables 1–2), 86 came from contexts that could not be dated with certainty, due to the absence of other material, notably ceramics. 63 pieces were associated with both Neolithic and Chalcolithic ceramics; 69 artefacts came from contexts containing a mix of Chalcolithic and Kura-Araxes pottery; 42 pieces were associated with ceramics from all periods, and only one piece could be dated surely to the Kura-Araxes period (one core from Chikiani, *supra*). We assume that among those elements the Chalcolithic ones are far more represented than the others, due to the overall smaller quantity of artefacts in the Neolithic phases and the Kura-Araxes structures compared to the great number of Chalcolithic remains.

The sample consists mainly of unipolar blades produced by pressure-flaking on prismatic cores, regardless of the raw material (Tables 1–2). Other production techniques will be mentioned when necessary.

Among the undated material from mixed contexts, the obsidian from Gegham is the most abundant. Four flake cores are remains of the production of small irregular flakes. Four shaping flakes are attested, including a blank with a faceted butt. Three elongated flakes are present, one with a faceted butt and another with a faceted butt and pressure retouch. Another flake shows pressure retouch.

If we consider the quasi-absence of Gegham obsidian during the Neolithic phase and the probable disappearance of the blades during the Early Bronze Age phase, most if not all the blades made with this raw material in mixed or unsecured contexts may be related to the Chalcolithic period. One of the crested blades was purposely incised before being broken. Among the seven lateral blades, one has a lateral natural surface and was fractured with an incision, one shows traces of shaping and has a faceted butt, and three have pressure retouch. The widths of the central blades are between 8 and 35.7 mm. Nine of those blades have a faceted butt, one of them showing a breakage with an incision and four with pressure-flaking retouch. Seven other blades have widths between 27.4 and 35.7 mm and could have been produced using a lever; one has a faceted butt, another has a faceted butt and pressure retouch and, finally, one blade broken by means of incision bears a pressure retouch. Among the central blades, two were presumably produced with a copper tip.

The rest of the artefacts cannot be precisely dated. The blades can be attributed to either the Neolithic or Chalcolithic period, while the other categories of artefacts and especially the flakes can also be related to the Early Bronze Age occupation.

The flake core fragment on a Sarikamış North obsidian is exhausted and has yielded no technological data. The presence of two shaping flakes and one flake knapped from a blade core are noteworthy. Blade widths vary between 9.2 and 26 mm. The butts are often plain; one is punctiform and picked, two are faceted and one is linear. Ten blades seem to be fractured by incision and two among them show a pressure retouch. Five blades also show a pressure retouch.

From Sarikamış South comes a conical flake core that was exploited for the *débitage* of small flakes. The blade widths vary between 11.2 and 25.8 mm. The platform is at 90° and butts are plain or faceted. Among these blades are a *pièce esquillée* and a burin with lateral retouch. We also noticed an incision prior to breakage of a blank, a blank with a denticulate and a lateral retouch by pressure-flaking, and two lateral retouches by pressure-flaking. These results are interesting, as Sarikamış South is not documented in the Chalcolithic period (*supra*).

The Tsaghkunyats sample includes a shaping flake and three shaped lateral blades. The widths of the blades range between 11 and 30.5 mm. The largest blades were probably knapped by pressure using a lever. We can assume that the implement's tip was in some cases made of copper. We also noticed a faceted butt and another that was completely smoothed, six controlled breakages by incision and five blades with pressure-flaking retouch. In addition, we identified a sickle element made on a blank fractured by incision.

Several items come from Chikiani. One is a fragment from a block 74 mm long. Natural surfaces cover a large part of the raw material. Its morphology made exploitation difficult and the block is of bad quality. Among nine flake cores, one is made on a pebble. Except for two cores probably associated with the Early Bronze Age, the remaining seven are knapped following a unipolar or crossed *débitage*. One shaped lateral blade is knapped by direct percussion; it shows a burin and lateral retouch. The blade widths vary between 10.1 and 21.5 mm. One of the butts is totally smoothed. Two blades were retouched with pressure-flaking (one lateral retouch and one lateral retouch and truncation). Breakage by incision was done on two blades.

From **Gutansar**, obsidian blades range between 9.7 and 33 mm in width. Three other artefacts are worth noticing: one blade fractured with the help of an incision, one potentially knapped by pressure with a copper tip, and one with a pressure-flaking retouch and a truncation.

One **Syunik** obsidian flake core is characterized by crossed *débitage*. It was knapped by direct percussion for the production of small flakes. One flake on a pebble is also present. Blades range between 17 and 22 mm in width and were detached by the pressure technique. The largest blade was probably knapped with the help of a copper tip. Another blade was fractured using an incision and bears a lateral retouch made by pressure-flaking.

Hatis obsidian was used to make a flake core on a flake knapped by direct percussion. A lateral blade with traces of shaping has a faceted butt and might show the mark of a copper tip. The source of **Arteni** was identified thanks to a borer. Nine small pebbles from **Khorapor** are similar to the one found in Chalcolithic period. Finally, a *pièce esquillée* on a flake and a burin on a blade come from **Yağlıca Dağ**.

The metallurgical fundament of the Near East religions — a Bronze Age perspective

Nissim AMZALLAG

Abstract

The association of copper metallurgy in Bronze Age Near East societies with cosmic forces, holiness, vitality, healing, death and the afterlife reveals a religious dimension to this craft. The affinities of copper metallurgy with the serpent symbol confirm its centrality in the development of Bronze Age religious concepts. The reason for this involvement, however, remains obscure. Since iron metallurgy did not enjoy the same religious prestige in the ancient Near East, its comparison with copper metallurgy is exploited here to elucidate why the latter became a main religious fundament. It is then concluded that the elevated status of copper metallurgy results from the interpretation of its production from ore as an act of creation of matter and of recycling corroded copper in a furnace as a process of rejuvenation and revitalisation. This representation fits especially well with the conditions of the emergence of copper metallurgy in the Southern Levant in the fifth millennium BCE, suggesting that the earliest expression of this religious dimension originated in that homeland.

Keywords: cultural metallurgy, smith god, Bronze Age religions, ancient Near East, copper versus iron symbolism

Introduction

Bronze Age societies from Europe, the Near East and Asia display surprising similarities in their rituals, cults and myths.¹ For this reason, scholars have deduced that the Bronze Age universe became, in the second millennium BCE “[...] interlinked in both technological and cosmological terms from the east Mediterranean and Eurasia to Scandinavia.”² This situation is especially interesting for the investigation of ancient Near Eastern societies, because that area is frequently regarded as the source of this web of beliefs that was propagated gradually from the early fourth millennium BCE. That this period coincides with the development of metallurgy in the ancient Near East is not a coincidence. This craft is considered a trigger for the emergence of a long-range network of trade,³ gradually expanding from the ancient Near East to central and northern Europe,

¹ Kristiansen and Larsson 2005, pp. 43–61; Gori 2014; Vandkilde 2014; El Safadi 2018, pp. 65–84.

² Kristiansen and Larsson 2005, p. 61.

³ Stech and Pigott 1986; Kristiansen and Earle 2015; Kohl (2007, p. 29) considers the exchange of metal as being of central importance in the transformation of the Neolithic societies: “For transforming late prehistoric societies, the exchange of metals was as important as their production, if not more so. The earliest metals were more ornamental than functional, but as such, they were not unimportant, particularly as they became caught up in prestige-goods networks of exchange that could have significant transformative effects on local societies.”

the Mediterranean world, the Asian steppe and the Indian subcontinent.⁴ The unequal distribution of ores on the earth, combined with a ubiquitous demand for metals, created an ‘international spirit’ in the Bronze Age and allowed vast domains in which ore, raw metals and metallic implements circulated — so-called metallurgical provinces — to emerge.⁵ In such a context, the circulation of ideas and beliefs accompanying the exchange of goods, techniques and knowledge across long distances is enough to justify the emergence and gradual extension of a Bronze Age religious koine.⁶

As the source of the exchange network, we expect copper to be of cultural importance in Bronze Age societies. Some observations support this premise. For example, the high ratio of ritual/prestige versus utilitarian copper implements produced in the Bronze Age highlights this cultural importance, which probably fuelled the demand for this metal and the long-range trade distributing it.⁷ This explanation concerning the contribution of copper metallurgy is, however, insufficient. The desire for copper cannot justify the spread of cultic metallurgy, the emergence of myths attributing a semi-godlike status to metalworkers, and the substantial symbolic charge attached to copper production attested in many Bronze Age cultures.⁸ Rather, a religious dimension typically associated with the metallurgy of copper probably existed in the ancient Near East. Its association with cosmology, holiness, vitality, death and the afterlife (see below) even suggests that it was one of the most essential fundaments shaping the universe of beliefs in Bronze Age societies. This reality is stressed by Kristiansen and Larsson, who conclude that metallurgy was the key to the development of the Bronze Age religious koine: “the rise of chiefdoms often corresponds to an increased development of metallurgical skills and a whole new set of myths and gods linked to the sacred role of mining, smithing and rituals of transformation.”⁹ The source of this outstanding status of metallurgy remains obscure today. The fiery environment of metal production cannot justify it alone, because none of the other ‘arts of fire’ (pottery, glassmaking, preparation of pigments and plaster, baking) enjoyed such prestigious status in the Bronze Age.

In attempting to elucidate its origin, this religious dimension is frequently investigated through ethnological studies about the importance of metallurgy in traditional societies, mainly from Africa.¹⁰ However, this approach is relevant only if homology and/or a similarity in symbolism exist between the metallurgy of copper in the Bronze Age cultures and the metallurgy of iron in traditional societies. This assumption is not easy to justify. In traditional Africa, the furnace’s figuration as a pregnant woman reveals that the symbolism of procreation is generally attached to iron smelting.¹¹ The operation performed in a furnace is likened to parturition by identifying bloom (spongy) iron

⁴ Frank 1993; Frank and Thompson 2005, pp. 137–141; Ratnagar 2001; Kardulias and Hall 2008.

⁵ Renfrew 1967, pp. 15–18; Chernykh 1992; Earle 2002, pp. 294–296; Kristiansen and Larsson 2005, pp. 43–61; Kohl 2007, p. 246; Amzallag 2009a, pp. 510–513.

⁶ Foxhall *et al.* 2015; Brysbaert 2014.

⁷ Ratnagar 2001, pp. 254–257; Brück and Fontijn 2013, pp. 201–203; Kristiansen and Earle 2015, pp. 239–242.

⁸ Budd and Taylor 1995, pp. 137–139; Blakely-Westover 1999; Goldhahn and Oestigaard 2007; Barndon 2006, pp. 98–100; Rotea *et al.* 2011.

⁹ Kristiansen and Larsson 2005, p. 52. Goldhahn and Oestigaard come to the same conclusion (2007, p. 222), arguing that the smith was a cosmologist and a ritual specialist.

¹⁰ See for example, Williamson 1990, pp. 81–92, 106–107; McNutt 1990; Haaland 2004; Berggren 2004; Blakely 2006; Rotea *et al.* 2011; Gosić 2013, pp. 272–280; Gosić and Gilead 2015a.

¹¹ This homology is extensively attested in Africa. See, for example, Reid and MacLean 1995, p. 149; Lévi-Makarius 1974, p. 214; Childs and Killick 1993, p. 326; McNutt 1990, p. 69.

with the newborn and the molten slag with the placenta and water lost at birth.¹² In antiquity, however, such symbolism is not attested in relation to copper production. Even the furnaces used for iron production do not exhibit traces of gynaecomorphism, suggesting that the symbolism of metallurgy found in traditional Africa probably differed from the symbolism surrounding copper production in the Bronze Age and iron production in the first millennium BCE. An ethnological examination cannot therefore necessarily reveal why metallurgy became a religious fundament in antiquity.¹³ A new approach is proposed here. It is founded on the differences between the religious dimension of copper and iron metallurgy in antiquity. After comparing the way copper and iron were produced in the past, these divergences are used to clarify the origin of the outstanding status of copper metallurgy.

Copper metallurgy as fundament — archaeological evidence

Cultic metallurgy in copper production areas

If metallurgy represented a religious fundament of importance in the Near East, traces of cultic metallurgy are to be expected in areas of copper production. This phenomenon is observed in Sinai, where a sanctuary devoted to Hathor was discovered in the copper mining district of Serabit el Khadim.¹⁴ Its direct connection to mining galleries suggests a holy dimension to the act of mining.¹⁵ Another sanctuary devoted to Hathor from the Late Bronze Age existed in Timna's copper mining area (Arabah, Southern Levant). The traces of cultic metallurgy persisted into the Iron Age after the shrine evolved into a Canaanite tent-sanctuary.¹⁶ Also in eastern Arabia, cultic metallurgy is evidenced in the copper mining areas of Bitnah and Fujirah (Oman). In these sites, the cultic area comprises furnaces, an open-air altar, a libation vessel and traces of copper pouring. It is also characterised by the omnipresence of the serpent symbol.¹⁷ Traces of cultic metallurgy also exist in mining areas from Europe. In Transylvania, the Middle Bronze Age site of Palatca and Boldut has furnace-like altars with burned animal bones, a feature suggesting a symbolic homology between furnace smelting/re-melting and sacrificial activity.¹⁸

Metallurgical activity in temples

Copper workshops are frequently identified in the vicinity of temples, or even integrated into their surrounds. In Late Bronze Age Cyprus, for example, direct communication between metallurgical workshops and sanctuary courtyards is observed in Kition, Athienou and Enkomi.¹⁹ The

¹² Blakely 2006, pp. 99–105; Williams 2012, p. 49.

¹³ For example, Martin Jezek (2015, p. 128) rejects this approach, considering “the application of ethnographic knowledge of the symbolic aspect of iron (!) metallurgy in present-day Africa or South Asia to European archaeological material from the Eneolithic up to the Early Middle Ages as a dead-end.”

¹⁴ Al Ayedi 2007, pp. 23–26.

¹⁵ Valbelle and Bonnet 1996, pp. 65, 85.

¹⁶ Rothenberg 1988, pp. 192, 195–196.

¹⁷ Benoist 2007; Benoist *et al.* 2015.

¹⁸ Rotea *et al.* 2011.

¹⁹ Courtois 1973, p. 243; Knapp 1986, p. 48; Karageorghis and Demas 1985; Kassianidou 2005.

metallurgical activities in the temples focused on copper recycling, refining and casting, rather than copper production by smelting.²⁰ Cyprus was the main producer of copper in the Eastern Mediterranean in the Late Bronze Age; for this reason, the cultic metallurgy might relate to the wealth generated by this craft rather than expressing any intrinsic religious dimension. It may also attest to the participation of the temples in the economy of transformation and trade of copper.²¹

In the Bronze Age, however, the integration of metallurgy into the holy sphere also occurred far from copper production areas.²² Remains of metallurgy (crucibles, moulds, nozzles and tuyeres) were identified in the vicinity of temples in the Aegean area.²³ Metallurgy also integrates with the holy sphere in the Southern Levant.²⁴ This is evidenced by the finding of crucibles, stone moulds, miniature ingots and lumps of copper in the vicinity of sanctuaries in Kamid el Loz, Hazor and Tel Dan.²⁵ At Tel Nami, the almost total absence of slag in metallurgical installations closely related to the temple (Late Bronze Age) suggests they were mainly used for recycling old copper.²⁶

The presence of a metallurgical workshop near a temple may be justified by the need to recycle the metal of votive artefacts and then trade it. The workshop, in this context, becomes an integrative part of the economy of the temple rather than a religious fundament. Without denying it, this reality cannot obfuscate another essential relationship between temples and metallurgy in the Bronze Age. In ancient Egypt, an examination of the ritual deposits preceding the construction of Old Kingdom temples reveals the presence not only of miniature metallic implements but also of metallic ores, fragments of solidified metal flows and miniature ingots.²⁷ Such ritual practice reflects a symbolic homology between temples and areas of metal production.²⁸ Metallic implements were also discovered in the Bronze Age temples from Byblos, Megiddo and Ugarit. Although they were once interpreted as votive offerings, the location of some of them under the temple or even within its walls suggests that they were foundation deposits.²⁹ A similar feature is evidenced in Tell Mumbaqat (middle Euphrates), where a jar containing intentionally broken metal implements was integrated into the basement wall of a temple built in the early second millennium BCE.³⁰ The entire metallurgical process, from ore mining to the fabrication of metallic implements, was symbolised through a variety of deposited metallic items in temple foundations. It is likely that metallurgy was considered the source that lent the shrines their holiness. The appellation of temples as 'houses of copper' in some Mycenaean documents (Linear B) confirms the essential relation between this metal and holiness.³¹

²⁰ Karageorghis and Kassianidou 1999; Kassianidou 2005, pp. 137–139.

²¹ Constantinidiou 1992, pp. 150–151.

²² Knapp 1986, p. 48; Jezek 2015, p. 132.

²³ Artzy 2000; Blakely-Westover 1999; Karageorghis and Kassianidou 1999.

²⁴ Blakely-Westover 1999; Ben Dov 2011, p. 87.

²⁵ Metzger 1991, table 17; Yahalom-Mack *et al.* 2014, pp. 25–30; and Ben Dov 2011, respectively.

²⁶ Artzy 2000, pp. 27–28. This hypothesis is confirmed by the presence in the temple, apart from crucibles and other metallurgical remains, of bronze artefacts stocked for recycling (Artzy 1995, pp. 23–25).

²⁷ Aufrère 1991, pp. 189–191.

²⁸ Aufrère 1991, p. 193.

²⁹ Philip 1988, pp. 191–196.

³⁰ Philip 1988, p. 194.

³¹ Constantinidiou 1992, p. 153.

Copper deposits

The burial of copper implements is a practice extensively observed in the Bronze Age. One of its earliest manifestations is in Kfar Monash (Israel, late fourth millennium BCE). There, many copper objects, mainly tools (flat axes, adzes, chisels) and weapons, were buried outside of habitations, metallurgical workshops or cultic sites.³² Archaeologists assumed at first that these hoards were intentionally hidden but never recovered.³³ However, odd artefacts (a mace-head, small copper plates, a crescent-shaped item, large curved knives) of abnormal weight or size render it improbable that these were a collection of copper items deposited for trade or recycling scrap. The presence of metallic tools and the absence of traces of ritual both challenge the interpretation of this hoard as a votive deposit.³⁴

A similar paradox is observed in Bronze Age India. There, many copper hoards from the second millennium BCE are evidenced both in the Ganges-Yamuna cultures and in the southern part of the subcontinent.³⁵ The metal burial is neither related to any funerary context nor especially attached to any social elite.³⁶ The frequent burial of metallic implements in the wild, sometimes in riverbeds, challenges their classic interpretation as caches for safeguarding the metal.³⁷ In most cases, the metal implements were not buried as deposits for possible future use.³⁸ As in Kfar Monash, most of the artefacts show no evidence of use before their burial. Furthermore, their abnormal size and pure copper composition reveal that they were not manufactured for practical use.³⁹

The enigmatic practice of hoard burial is also attested in Bronze Age societies from Central and Western Europe. Here again, most of the buried hoards contain tools (chiefly axes) and weapons (swords, daggers), some of them never used. In Europe, however, pieces of scrap copper, unfinished implements, half-molten copper items and even copper ingots may also be present. These hoards were deposited outside of habitation contexts. Again, the discovery of hoards in rivers and ponds strengthens the assumption that substantial quantities of copper were deposited with no intention of being recovered.⁴⁰

The practice of buried hoards being disconnected from any visible practical function probably reflects religious beliefs closely related to the metal as a material. Furthermore, since these deposits are buried in the wild, out of any sanctuary context, we may conclude that the burial of copper implements was a ritual act with holiness of its own, independent of any other religious activity. Again, this interpretation fits the position that copper metallurgy was separate from the set of beliefs constituting the official religion.

³² Sebbane 2003.

³³ Hestrin and Tadmor 1963.

³⁴ Philip 1988, p. 199.

³⁵ Piggott 1984; Gupta 1963; Agrawal 1969; Allchin and Allchin 1982, pp. 255–258; Yule 1985, pp. 27–51. The analysis of the expansion of ochre-coloured pottery that characterises the Copper Hoard culture suggests that it was influenced by the late Harappa culture (Lal 1972). Nevertheless, substantial differences are observed between the two in metallurgical traditions, which were considerably simpler in the Copper Hoard culture than in the Harappa (Yule 1985, pp. 98–99).

³⁶ Yule 1992, pp. 231–232.

³⁷ Peuke 1973.

³⁸ Yule 1992, pp. 229–232.

³⁹ Yule 1985, pp. 99–103; Lahiri 1995, p. 117.

⁴⁰ Fontijn 2012, pp. 50–52; Brück and Fontijn 2013; Bradley 1988; Needham 1988; Turner 1998; Levy 1982; O'Flaherty 1995. For Stuart Needham (2001, pp. 288–289), however, some of the deposits might have been functional, constituting storage before a reuse of the implements or metal.

Copper in graves

Copper implements are frequently found in burial contexts during the Bronze Age. Here again, it is tempting to approach these items as personal prestige artefacts accompanying the dead into the afterlife. However, the interpretation of the kurgan — the typical burial mound of the elite in Central Europe and Asia Bronze Age societies — as a symbolic furnace, calls for a reconsideration of the relationship between death and metallurgy.⁴¹ The metallurgical symbolism attached to death and transition to the afterlife is confirmed by the presence of metallurgical tools in graves from the royal cemetery of Ur and of the political elite in Canaan, Cyprus, the East Mediterranean area and Europe.⁴² Once more, the simplest explanation is to assume that these graves belonged to smiths buried with their tools. However, the discovery of metallurgical tools and remains in burials of women and children, as well as the widespread distribution of touchstones in burials, calls for further explanation.⁴³ In Bronze Age India, as well, there is similar use of slag and remains of metallurgical activities in funeral contexts, independent of any metallurgical activity involving the dead.⁴⁴ These findings reveal a symbolic parallel between the human life cycle and the cycle of copper transformations.

This overview reflects copper's outstanding status in Bronze Age societies, which cannot be justified only by the preciousness of this metal and its use in prestige artefacts. The presence of metallurgical tools, ore and slag in ritual deposits stresses the holy status of the processes of production, working and recycling of copper. The traces of metallurgy in temples and burials confirm even further that, in the Bronze Age, this craft was a fundament of religious beliefs in the ancient Near East, the Mediterranean area, central and northern Europe and India. The similarities between these ritual practices involving metallurgy in all these societies confirm the existence of a religious koine in Bronze Age societies, built around copper metallurgy as a religious fundament.⁴⁵

The status of iron in the Iron Age*The distance of iron from the religious sphere*

Copper was the main metal produced in the Bronze Age. For this reason, the ritual importance devoted to copper may have either of two distinct origins. It may reflect attributes specifically attached to copper and its metallurgy; or it may be an expression of the general holiness of metallurgy, independently of any specificity of copper. The simplest way to distinguish between these

⁴¹ Dieterle 1987, p. 5.

⁴² Jezek 2015, pp. 125–127 and references therein.

⁴³ Jezek 2015, pp. 121–122, 126, 133–134 and references therein.

⁴⁴ Lahiri 1995, p. 130.

⁴⁵ For Barndon (2006, p. 102), in antiquity, “early metal making, bronze, as well as iron, was associated with some form of politico-religious power and some sort of secret knowledge of magic. I would further suggest that this secret knowledge was based on profound experiences that metaphorical imagination and containment thinking made essential for smelting symbolism.” Also in traditional societies, holiness and magic powers relative to metallurgy are attached rather to smelting than to metalworking. See Blakely 2006, pp. 68, 176 and references therein; Van der Merwe and Avery 1988; de Barros 2000, p. 150.

two eventualities is to examine the situation in the Iron Age, because the religious importance of metals frequently continues as observed before, but iron gradually replaces copper as the main metal. Consequently, if iron comes to incorporate the holy sphere previously centred on copper and its metallurgy, we may deduce that metallurgy in general was the source of holiness in the Bronze Age. On the other hand, if copper preserves its special status in the religious sphere, and especially if iron artefacts are underrepresented there, we may deduce that something specific to copper was the source of the special status of metallurgy in the Bronze Age.

An examination of temple remains in ancient Greece reveals a considerable increase in metal votives from the eighth century BCE in comparison with the Dark Age period (twelfth–ninth centuries) and even the Late Bronze Age. Furthermore, extending what is observed in the Bronze Age, metallurgical workshops are frequently found in the vicinity of temples.⁴⁶ The offering of impressive metal-made votive artefacts confirms that metals' importance remained vivid in the Iron Age;⁴⁷ however, most are copper-made, and iron-made votive objects are clearly underrepresented in ancient Greece.⁴⁸ Also in Assyria, iron gradually replaced copper as the main metal in the eighth century BCE, but unlike copper-made cultic artefacts, their iron-made counterparts remained rare.⁴⁹ In the Bible, the abundance of copper, gold and silver in the Jerusalem temple (1 Kgs 7) contrasts with the total absence of iron.⁵⁰

A decline in the number of votive copper artefacts is observed in Greece from the mid-first millennium BCE. Occurring independently of copper availability, this phenomenon is not compensated for by any increase in iron deposits.⁵¹ This means that iron did not replace copper in the religious sphere once copper's importance decreased. A similar situation is observed in ancient Israel, where the impressive copper artefacts characterising the Jerusalem sanctuary in the monarchic period are not present again after its reconstruction in the Persian period. Here too, iron did not replace copper in the temple.

These observations indicate that iron and copper did not have the same status in the Near East in the Iron Age. Whereas a religious dimension clearly remained attached to copper, iron apparently did not easily integrate with the religious sphere. Even in Rome, where iron was appreciated for its strength and became the symbol of power and stability, this metal remained strikingly absent from the religious horizon. Copper, on the other hand, is well represented.⁵² Iron tools were prohibited in Rome in the preparation of the incense for cultic purposes, and even for the reparation of ancient shrines and prestigious edifices.⁵³ The same exclusion of iron from the religious sphere is observed

⁴⁶ Schneider 1989; Risberg 1992.

⁴⁷ Hodkinson 1998, pp. 57–58.

⁴⁸ De Polignac 1994; Coldstream 2003, p. 338. Homer mentions iron for its mechanical qualities, but this metal is ignored in the temples and palaces, where copper is extensively mentioned and approached as a noble and prestigious metal. See, for example, the description of the palace of Alkinoos in *Odyssey* 7:70–102.

⁴⁹ Pleiner and Bjorkman 1974, pp. 283–313.

⁵⁰ See Exodus 25–27; 1 Kings 7:13–51. Later, the Chronicler added iron to the list of metals used in the temple: see 1 Chronicles 22:13–15. This lack is especially intriguing because the Southern Levant is one of the most ancient areas for the development of iron metallurgy. See McNutt 1990, pp. 153–193; Gottlieb 2010, pp. 104–106.

⁵¹ Hodkinson 1998, pp. 60–62.

⁵² Siegelova and Tsumuto 2011, p. 276.

⁵³ Faure 1987, p. 87; Fowler 1911, p. 127; Lévi-Makarius 1974, p. 218. Iron knives were even forbidden for the personal use of the priests in Rome (Faure 1987, p. 118). This taboo is explicit in the case of the Sublicius bridge, a monument belonging to the time of the foundation of Rome, and the site of religious ceremonies. The use of iron tools and even strengthening pieces was prohibited throughout the city's history. See Champeaux 2008, pp. 117–121.

in Iron Age Egypt, where it was explicitly considered impure.⁵⁴ In the Bible, too, we notice a prohibition on the use of iron tools for the construction of sanctuaries and memorial sites.⁵⁵

The possible motivations for iron exclusion

The combination of an extension of the religious dimension of copper into the Iron Age and an exclusion of iron from the religious sphere is nothing trivial. At least three explanations should be considered for this singular situation.

Societal considerations

The rise of iron metallurgy came with societal transformations. It generated new commercial circuits that replaced the international networks of trade organised around copper and tin. For this reason, the lack of holiness attributed to iron may express a loss of control, power and prestige among the ancient elites who controlled the circuits of production and distribution of copper once iron metallurgy arose.⁵⁶ Furthermore, the relative abundance of iron, combined with its strength, stimulated the development of new tools promoting wealth but also weapons that opened up new opportunities for conquest and enslavement.⁵⁷ Consequently, the low religious status of iron might reflect the destructive effect the rise of this metal had on the Bronze Age system of values.⁵⁸

Though the drastic changes that accompanied the diffusion of iron may be a factor in the exclusion of this metal, they alone cannot justify it. For example, the low status of iron versus copper in Rome can hardly reflect a local demise of the Bronze Age system of values, because Rome is a city that emerged in the Iron Age, and iron was the basis of its military power. Similar observations can be made of Israel, a nation that emerged on the basis of the rejection of the Bronze Age Canaanite society, its organisation and its religious beliefs. Here, too, the exclusion of iron cannot be justified in terms of nostalgia for the societal values prevailing in the Late Bronze Age.⁵⁹

Differences in physical properties

Copper and iron differ in strength, colour and brightness. Furthermore, copper may be cast easily, whereas iron could be worked in its solid state only during antiquity. This restricted the

⁵⁴ Lévi-Makarius 1974, p. 217.

⁵⁵ Deuteronomy 27:5; Joshua 8:31; 1 Kings 6:7.

⁵⁶ Gosden (2012, p. 16) specifies that "The Iron Age [was] more pragmatic, technically effective and to some degree a more democratic world, [but] lacked the openness, innovation and heroism of warfare and travel seen in the Bronze Age."

⁵⁷ Sherratt and Sherratt 1992, p. 363; Pleiner and Bjorkman 1974, p. 283.

⁵⁸ Blakely 2006, p. 200.

⁵⁹ Considerations from traditional societies also contribute to minimising this sociological explanation. In sub-Saharan Africa, iron and copper metallurgies were introduced together at the end of the second millennium BCE (Miller and van der Merwe 1994). In this area, however, iron neither supplanted copper nor eliminated the moral values promoted during the Bronze Age but became the most important metal primarily. Nevertheless, even in these conditions, copper was granted the status of holy metal, even preferred to gold and silver (Herbert 1973, pp. 180, 187–188, 192–194). In the traditional societies from the Niger valley (Mandé), copper remained preferentially used in religious ceremonies and many cultic artefacts were exclusively made of this metal. See Childs and Killick 1993, pp. 331–332. Pure copper was even preferred to alloys for ritual use and added to iron artefacts to provide magical, protective and apotropaic virtues. See Herbert 1973, pp. 183–184.

possibilities for shaping this metal; it also limited the possibilities of combining iron with the most precious metals: silver and gold. These restrictions might be at the source of the preference for copper in the religious sphere even in the Iron Age.

This explanation is challenged, however, by the elevated status of iron in the Bronze Age, during which time this metal was even more precious than gold.⁶⁰ Iron-made prestige artefacts such as knives and cultic implements are found in the Bronze Age ancient Near East.⁶¹ In ancient Egypt, where iron was considered an impure metal during the Iron Age, iron-made ritual knives are dated from the third and second millennia BCE.⁶² Among the Hittites, iron was regarded in the Bronze Age as a precious metal with magical properties, used for making royal insignia, prestige weapons and ritual artefacts.⁶³ As the *only* metal of meteoritic origin, iron was even approached as a divine material, a gift from the gods.⁶⁴ It was therefore fully integrated into the holy sphere during the Bronze Age, when it even enjoyed a prestigious status. Consequently, the low status of iron in the Iron Age may be justified neither by the physical properties of this metal nor by any religious conservatism privileging copper. Instead, the distance of iron from the holy sphere is an Iron Age innovation, diverging from Bronze Age traditions.

Differences in production

The change in the status of iron is not a mere consequence of its transformation into the dominant metal. Such a distance from the religious sphere is already observed in Anatolia from the beginning of the Iron Age, in the 12th century BC, at which time copper remained more common. Iron was no longer used for making prestige artefacts but rather for producing tools and weapons.⁶⁵ This transformation is concomitant with the development of a genuine metallurgy of iron: the production of this metal from ore.

At first sight, we might guess that the production of iron from ore challenged its previous status as a divine metal, deduced from its meteoritic origin. However, this explanation is again insufficient, for at least two reasons. First, the holiness of copper does not refer to the native metal, but to the one produced in a furnace. Furthermore, chemical analysis reveals that the iron used for making prestige and ritual artefacts was not always of meteoritic origin in the Bronze Age.⁶⁶ A fraction of this metal was already produced in a furnace, as a by-product of the smelting of copper.⁶⁷ The use of such adventitious iron in the Bronze Age reveals that this metal did not benefit from a prestigious status only because of the belief in its exclusive meteoritic origin. Consequently, it seems that the downgrade

⁶⁰ Pleiner and Bjorkman 1974, p. 286; McNutt 1990, pp. 108, 118, 122, 131.

⁶¹ Wainwright 1932, p. 3; Pleiner and Bjorkman 1974, p. 286.

⁶² Wainwright 1932, pp. 10–11.

⁶³ Siegelova and Tsumuto 2011, p. 280.

⁶⁴ Wainwright 1932, p. 5; Pleiner and Bjorkman 1974, p. 285. This divine aspect of iron was confirmed by magnetism, a unique property of this metal that explains why iron was also used for magic purposes and healing. See Pleiner and Bjorkman 1974, p. 305; McNutt 1990, p. 108; Blakely 2006, p. 141.

⁶⁵ Siegelova and Tsumuto 2011, p. 296.

⁶⁶ Gale *et al.* 1990; Rothenberg 1988, pp. 147–148.

⁶⁷ In antiquity, iron-rich minerals were added as fluxes for improving the melting of silicates during copper smelting. This addition stimulated the dissolution of small amounts of iron (up to three per cent) in molten copper, separated from copper during solidification. After that, this adventitious iron was recuperated by metalworkers and transformed into small artefacts. For details, see Craddock and Meeks 1987; Gale *et al.* 1990; Pickles and Peltenburg 1998, pp. 90–91; Pleiner 2000, pp. 212–213; Erb-Satullo *et al.* 2014.

of iron's status in the last centuries of the second millennium BCE resulted mainly from the change in its mode of production, from the by-product of copper smelting in the Bronze Age to an autonomous process in the Iron Age.

This examination reveals that approaching metallurgy as an art of fire is not enough to make it a fundament of the Bronze Age religions. Rather, something exclusive to copper metallurgy, and absent from iron metallurgy, is probably at the source of the holy status of this activity and its products. For this reason, a comparison of the modes of production of the two metals may help us to identify what made copper metallurgy a religious fundament.

The differences between copper and iron symbolism

Iron has a melting point (1536 °C) higher than all other metals worked in antiquity (copper: 1063 °C; gold: 1059 °C; silver: 962 °C; lead: 327 °C; and tin: 232 °C). This characteristic is especially important because the temperature in the furnace in antiquity rarely rose above 1300 °C. Iron consequently differed from all other metals in its inability to melt, a feature conditioning not only how it was worked but also the way it was produced and reused. A comparison between copper and iron metallurgy emphasises these differences and their symbolic implications.

Metal production

In antiquity, copper was produced in furnaces by mixing ground ore with fluxes rich in iron or manganese and with coals. Up to the mid-third millennium BCE, the main ore used for copper production was a homogenous green-blue coloured sandstone (azurite, malachite). These minerals differ in every way from metallic copper, a shining plastic and red-coloured matter. The similar density of this ore to all other sandstone types opposed the idea of a hidden presence of copper. In these conditions, and in ignorance of the principles of modern chemistry, the simplest explanation was that the furnace was the site of *the creation* of metal in the course of the transformation of ore into slag.⁶⁸

The situation of iron is different. The high-grade iron ore used by ancient smelters is substantially heavier than ordinary stones, and concretions of oxidized iron (ooliths, pisoliths) are even visible within it. This means that, unlike copper, iron seems to be already present in the ore at an early stage. The inability of furnaces to reach the melting point of iron in antiquity strengthened this conclusion.⁶⁹ Iron remained in a solid state throughout the production process, and the mass of spongy iron (the bloom) issued from the furnace was reheated in the forge and extensively hammered. This process squeezed the silicates trapped in the net and transformed the mass of porous iron into a homogenous piece of metal. Thereafter, the metal's mechanical qualities (strength, elasticity) improved gradually through a long succession of heating, hammering, quenching and

⁶⁸ Finally, the reduction of copper occurs when the silicates are still at solid state, so that all the molten copper is suddenly released once the silicates reach melting point. Consequently, the metal accumulating at the bottom of the furnace looks like a new material *created* in the furnace.

⁶⁹ Gosden (2012, p. 15) considers this difference essential for understanding the singularity of iron symbolism in antiquity.

surface carburisation processes.⁷⁰ Unlike copper, produced through an all-or-nothing process, usable iron emerged gradually through a long series of transformations, during which the mechanical properties ‘matured’ gradually.

Consequently, the production of iron was probably not interpreted as an act of creation of matter. Rather than the demiurgic activity associated with copper, iron was perceived as emerging through maturation by fire.⁷¹ It was a process of transformation of matter that differed little from other crafts.

Rejuvenation versus irreversible loss

In copper metallurgy, furnaces were not only used for smelting but also for recycling the metal of old, damaged and scrap copper artefacts. During this process, attested from the earliest stages of copper metallurgy,⁷² the reducing atmosphere of the furnace enabled metal corrosion to disappear entirely, *without any loss of matter*. This meant that copper could undergo infinite cycles of regeneration by remelting. Here again, in a mental universe unaware of the principles of modern chemistry, the ‘rejuvenation’ of copper in a furnace is no less of an impressive wonder than its ‘creation.’

The inability to melt iron in antiquity prevented any possibility of recycling the metal from rusted artefacts. At best, rust was eliminated mechanically by reforging iron artefacts, but this process induced a substantial loss of matter (the rust). Unlike copper, iron displayed no capacity for rejuvenation — its existence was necessarily limited in time. Sooner or later, the efforts of the smelter to promote and/or accelerate the maturation of the iron trapped in silicates were necessarily thwarted by its oxidation.

These comparisons highlight the differences in the symbolism of copper and iron metallurgy in antiquity. Copper was the product of a demiurgic process and could regenerate infinitely. For this reason, copper metallurgy was ascribed creative powers and even credited with having mastered the secret of eternity through periodic cycles of destruction and reconstruction of shape. This transformed it into a holy activity, in which man expressed locally, with the help of the furnace, the powers that led to the creation and vitalisation of the earth. In contrast, iron, given its mode of production and the inability to recycle it, was probably likened to other human activities such as pottery making, cooking, baking and weaving, all characterised as transformation processes with a defined lifespan. It holds, then, that iron possessed no privileged status as a religious fundament.

The influence on religious fundaments

If copper metallurgy was interpreted in terms of creation and revitalisation, it might be expected that these characteristics would be given religious expression in the ancient Near East. This point is now examined.

⁷⁰ About the processes of iron smelting in antiquity, see Leroy and Merluzzo 2004. Concerning the post-smelting treatments, see Serneels *et al.* 2004, pp. 81–85.

⁷¹ The symbolism of parturition attached to iron smelting in traditional Africa confirms this view. See van der Merwe and Avery 1988, p. 164; Childs and Killick 1993, p. 326; Reid and MacLean 1995, p. 149; Blakely 2006, pp. 99–107.

⁷² Tadmor 2002, p. 142.

Copper and creation

The demiurgic dimension of copper metallurgy is reflected by the outstanding status of the gods sponsoring metallurgy. Hathor, the Egyptian deity patronising mining, was called the 'primeval goddess', 'the queen of the gods' and the 'mistress of the Universe'.⁷³ In Sumer, the smith god Enki was the creator of humanity, organiser of the Universe and promoter of civilisation.⁷⁴ His Egyptian counterpart, Ptah, was endowed with similar functions. In the Memphite cosmology, this god was even approached as the demiurge, the civilising deity and the organiser of the cult.⁷⁵ In Minoean Crete, the god patronising the arts of fire, Welkhanos, was acknowledged as the great deity of the island.⁷⁶ Also, YHWH, the god of Israel rooted in the metallurgical traditions of the Southern Levant, was explicitly approached as the creator of the Universe.⁷⁷

Copper metallurgy's demiurgic dimension is also reflected by the abundance of metal-made artefacts that symbolise elements of the cosmos, such as axes, sun chariots, sceptres, solar discs, crossed circles and more.⁷⁸ In addition, the firmament and the sun were sometimes represented as metallic.⁷⁹ In ancient Egypt, for example, the sun was thought of as a mass of copper rising daily from the Nun, the primeval ocean.⁸⁰ In Bronze Age Scandinavia, too, the sun was symbolised by a disk of metal.⁸¹ All these items show a linkage between metallurgy and the primeval powers of creation.

Furnace and rejuvenation

Ptah, the Egyptian smith god, was considered the master of the *ka*, the principle providing vitality to the whole Universe.⁸² The frequent use of copper, copper rust and malachite in medicinal formulations from Mesopotamia and ancient Egypt confirms that ways of healing were frequently inspired by metallurgy.⁸³ Healing powers are attributed to the gods of metallurgy: Ptah was the master of healing in Egypt,⁸⁴ and Ea/Enki was the main healing god in Mesopotamia.⁸⁵

⁷³ Bleeker 1973, pp. 20, 27, 58.

⁷⁴ Jacobsen 1981; Kramer and Maier 1989, pp. 38–56; Averbek 2003, pp. 757–762.

⁷⁵ Finnestad 1976, pp. 83, 93; Brandon 1963, p. 42.

⁷⁶ Willetts 1962, p. 250; Capdeville 1995, pp. 167, 178, 191.

⁷⁷ Amzallag 2009b; 2013.

⁷⁸ Davidson 1969, p. 174; Brück 2011, pp. 389–392; Ionescu and Dumitrache 2012, p. 159; Scarano and Maggiulli 2014. Concerning the cosmological significance of these artefacts, see Kristiansen and Larsson 2005, pp. 294–303.

⁷⁹ Brown 1968, pp. 37–42.

⁸⁰ Sauneron and Yoyotte 1959, p. 38.

⁸¹ MacCulloch 1930, pp. 198–199. According to Kristiansen and Larsson (2005, pp. 294–296), the discovery of the sun chariot from Trundholm (Denmark, 1500–1300 BCE) suggests a daily change in the composition of the sun from gold to bronze during the nightly netherworld journey. Also, in Siberia, the sun is represented as a man wearing shining copper clothes: see Siimets 2006, p. 133.

⁸² Brandon 1963, p. 38; Gordon and Gordon 1996, p. 32. Ptah was even acknowledged for providing the *ka* to all the other gods: see Budge 1904, pp. 510–513; Finnestad 1976, p. 102; this feature probably reflects the evidence that furnace remelting was the *only* process of rejuvenation mastered in antiquity.

⁸³ Herrero 1984, p. 56; Bardinet 1995, pp. 308–309. Copper is even the main component of a panacea mentioned in the Ebers papyrus (12.17–13.1). This belief is still attested in traditional India, where copper slag and residues from furnaces were traditionally used as remedies: see Lahiri 1995, p. 129.

⁸⁴ Other Egyptian deities associated with metallurgy, such as Hathor, Apis and Serapis, were also endowed with healing powers: Hathor patronised the copper mines of Sinai, Apis was the son of Ptah, and Serapis was identified with Ea/Enki. See Jayne 1962, pp. 57, 74 (Ptah and Hathor) and pp. 53, 77–78 (Apis and Serapis).

⁸⁵ Jayne 1962, pp. 118–120 (Ea/Enki) and pp. 121, 126 (Gibil/Nusku).

Cauldrons were cultic artefacts typically expressing the powers of rejuvenation in antiquity.⁸⁶ This characteristic is confirmed by the Janus-headed attachments (with an old face and a young one) identified on many cauldrons from the ancient Near East, Ancient Greece and Italy.⁸⁷ The centrality of this artefact in sacrifices promoting vitality, explicit in Central Asia and Anatolia, corroborates the connection with rejuvenation.⁸⁸ The combination in many ancient mythologies of the cauldron's connotations of birth and creation on the one hand, and death and destruction on the other (including their presence in funerary contexts) transforms this artefact into the symbol of the rejuvenation and vitalisation process.⁸⁹

The metallurgical dimension of the cauldron is revealed in its solar affinities. It is typically represented, in Bronze Age Europe and the ancient Near East, as the recipient of the sun, the site of its radiance and daily rejuvenation. The wheels (and occasionally wings) associated with cauldrons symbolise the daily motion of the sun in the sky, whereas their boat shape apparently symbolises the nightly migration of the sun through the underworld and its regeneration process.⁹⁰ In parallel, the representation in antiquity of the sun as a mass of molten metal is supported by their similar emission of heat and yellow radiance, and the red-yellow transition at sunrise and sunset looking like copper or gold heating towards its melting point (or solidifying from it).⁹¹ The frequent association in ancient mythologies of the crater of active volcanoes and the cauldron confirms the metallurgical aspects of this cultic artefact, in light of the homology between volcanism and metallurgy in antiquity.⁹²

In conclusion, it is likely that the association of the cauldron with rejuvenation (generally involving death by fire accompanied by a loss of shape, followed by transition through a liquid-phase, the 'cooking') is derived from the process of rejuvenation of copper by furnace remelting.

Metallurgy and the netherworld

Death was approached in antiquity as a phase of transition between life and the afterlife. Through this perspective, death becomes an integrative part of a process of rejuvenation. And here again, metallurgy was extensively involved in its representation in the Bronze Age. In ancient Egypt, the green colour of the copper ore mined at Sinai was traditionally thought to symbolise resurrection.⁹³ Furthermore, malachite was deposited in burials and was apparently spread on the dead in the pre-Dynastic period. In addition, charcoal, slag and furnace residuals are present in funeral contexts.⁹⁴

⁸⁶ Hopkins 1960; Suhr 1971; Erdy 1995.

⁸⁷ Goldman 1961, p. 245; Muscarella 1962, p. 318. The same symbolism of rejuvenation of the cauldron appears in China: see Louis 2006, pp. 210–211.

⁸⁸ Litvinskij 2002, p. 138.

⁸⁹ Ravindran 2018.

⁹⁰ Goldman 1961, pp. 245–246; Davidson 1969; Litvinskij 2002, p. 141; Panchenko 2012.

⁹¹ Amzallag 2015a, pp. 86–89.

⁹² Suhr (1967, pp. 218–219) noticed that "the bronze cauldron around which the protomes are placed is similar in shape to the caldera or crater from which the gazes and lava are ejected." The homology between volcanism and metallurgy derives from the similarity between lava and molten slag. Concerning the extensive identification of metallurgy with volcano activity in Greek mythology, see Ballabriga 1990, pp. 21–23. A similar relationship between the smith god and volcanoes is attested in Nordic mythologies: see Dieterle 1987.

⁹³ Lurker 1980, p. 127.

⁹⁴ This practice is attested by the green colour frequently observed on bones: see Midant-Reynes 2003, pp. 164–174, 180–184. Similar practices are observed in India, where the dead are frequently buried on charcoals (Lahiri 1995, p. 130).

These observations reveal that the grave was, in Egypt, likened to a copper furnace, in which the rust-like body of the deceased was expected to be revived through re-melting. The same approach is encountered in Bronze Age cultures from central Asia, where the kurgan, the burial place of the elite, was shaped like a furnace.⁹⁵ In addition, the cremation of the dead in metallurgical areas, especially in northern Europe, evidences the metallurgical approach to death and the afterlife.⁹⁶ These features attest to a widespread belief during the Bronze Age that ageing was a gradual rusting-like process leading to death, and the grave was a furnace in which a process of rejuvenation of the soul/body was expected to occur. The extensive addition of metallurgical tools or remains in burials confirms the widespread diffusion of these metallurgical conceptions of death and the afterlife in the past.⁹⁷

The affinities of the gods of metallurgy with the netherworld corroborate these views. Ptah was, in Ancient Egypt, the god who generated a new body for the soul of the dead.⁹⁸ In Mesopotamia, Ningizzida, the dragon god with metallurgical affinities, is the son of Ereshkigal, the goddess of the netherworld.⁹⁹ And in the Aegean, the Telkhines, the semi-divine metallurgists from the past, were the masters of the netherworld.¹⁰⁰ In Europe, the ram-horned serpent was both the symbol of Cernunnos, the Bronze Age patron of metallurgy, and the symbol of the cult of the dead.¹⁰¹

Copper metallurgy and the serpent symbol

A strong overlap exists in antiquity between the symbolism of the serpent and that related here to metallurgy. For example, the serpent is closely related to rejuvenation, as revealed by its use, in antiquity, as a symbol of healing (the revitalisation process par excellence).¹⁰² In parallel, the serpent symbol frequently figures on cultic cauldrons.¹⁰³ Furthermore, this animal became extensively associated with the netherworld in ancient religions.¹⁰⁴ Exactly as the elimination of rust by

⁹⁵ Dieterle (1987, p. 5) suggests that “the older domed furnaces that preceded the volcanic designs of the Iron age were almost perfect images of the megalithic tombs and, for that matter, of the individual ‘kurgan’ style tomb of the Indo-European peoples.”

⁹⁶ Goldhahn and Oestigaard 2007; Brück 2006a; 2006b. The burned bones’ analysis reveals that the temperature of the crematorium was intentionally enhanced to up to 1000° C, the physical conditions required for furnace remelting. See Goldhahn and Oestigaard 2007, pp. 217–219.

⁹⁷ See references in notes 41–43.

⁹⁸ Budge 1904, pp. 501–503. Ptah was also closely related to Seker, the god who carried the dead to the netherworld.

⁹⁹ Van Buren (1934, pp. 63–64) argues that Ningizzida was identified with Nusku, another version of the Mesopotamian smith god.

¹⁰⁰ Blakely 2006, p. 155.

¹⁰¹ Bober 1951, pp. 15, 28. His representation on the Gundestrup cauldron reveals the metallurgical affinities of Cernunnos, handling a torque (copper ingot) on the one hand and a serpent on the other.

¹⁰² James 1968; Wilson 2001, pp. 183–194; Charlesworth 2010, pp. 254–255.

¹⁰³ Hopkins 1960; Wilson 1990, pp. 291, 312; Louis 2006, p. 207; Papapexandrou 2008, p. 272. That *Mehen*, the Egyptian cosmic serpent, was the carrier of this vitalising factor (Joines 1974, p. 22; Piccione 1990) supports this metallurgical ascendant.

¹⁰⁴ Charlesworth (2010, p. 242) even concludes that “the serpent is the primeval symbol of the chthonic world.” According to Golan (1991, p. 106), in the Ancient Near East, “the serpent was the preferred incarnation of the deified lord of the lower world.” At Dilmun, snakes were buried together with the dead (see Potts 2007). The metallurgical associations of these practices emanate from the finding of serpent worship in copper production areas closely related to Dilmun: see Benoist 2007. Such association is already identified at the Early Bronze Age in the Levant, through serpent symbols in burials: see Steimer-Herbert 2000, pp. 18–19.

furnace remelting expressed rejuvenation, the serpent sloughing off its old skin was interpreted as soul transmigration, and the after-death transformation of the deceased person into a serpent symbolised the transition to a new lifecycle.¹⁰⁵ These parallels invite us to examine the connections of the serpent symbol with metallurgy.

In the ancient Near East, extensive use of the serpent symbol begins from the mid-fourth millennium BC, a period coinciding with the first wave of expansion of metallurgy.¹⁰⁶ Their interconnection is reflected by the metallurgical connotations attached to this animal in many cultures. Mehen, the primeval serpent of the Egyptian cosmogony, is called 'the fiery one'.¹⁰⁷ Like molten copper, he was also supposed to dwell in flames.¹⁰⁸ At Sumer, the 'holy' serpent was called 'seed of fire'.¹⁰⁹ More generally, an association between serpents/dragons and metallurgical areas is widely attested in antiquity.¹¹⁰

The association of the serpent symbol with gods sponsoring metallurgy confirms this link. Wadjet, the main goddess of Lower Egypt in the pre-Dynastic period (later identified with Hathor, the patroness of copper mining) was represented as a serpent. Ptah, the Egyptian patron of metalworkers, was identified with the Egyptian cosmic serpent *Ir-ta*.¹¹¹ The gods who were patrons of metallurgy were typically symbolised by serpents in Mesopotamia as well. The Sumerian god Enki is sometimes called 'the snake' (*mus Enki*) or even 'the black snake in the Abzu'.¹¹² His terrestrial residence, Dilmun, was the site of great serpent worship.¹¹³ In addition, his Akkadian counterpart, Ea, was represented as a two-headed snake.¹¹⁴ The Elamite homologue of Ea/Enki, the great god of Susa, is typically figured sitting on a coiled serpent, surrounded by dragons and facing a fire altar.¹¹⁵

This association of serpents with metallurgy extends into the Iron Age. It is revealed by the figuration of serpents and/or presence of copper serpents in sites where cultic metallurgy was performed, such as the naos of the tent-sanctuary located in the mining area from Timna (southern Arabah) and the cultic area of the copper production site of Bitnah (eastern Arabia).¹¹⁶ In the Bible, YHWH is a god surrounded by burning serpents (*serafim*, Isa 6:1–6), and this relationship

¹⁰⁵ Lurker 1980, p. 373.

¹⁰⁶ Amzallag 2009a, pp. 501–506.

¹⁰⁷ Or also 'flame face', 'the burned one', 'the flaming one', 'high of flame': see Joines 1974, pp. 44–45.

¹⁰⁸ "I know the name of this snake: who is on the mountain, who is in his flame" (coffin text spell 160 [CT II: 375], quoted by J.F. Borghouts 1974, p. 114).

¹⁰⁹ Jestin 1947, pp. 55–57.

¹¹⁰ As early as the 19th century, Buckland (1875, pp. 60–61) noticed that "a large number of the old-serpent myths represent this reptile as associated in some way with precious metals and precious stones; the serpent constantly appears as the guardian of hidden treasures and the revealing of precious knowledge." Modern authors confirm the status of the serpent as guardian of mineral treasures: see Suhr 1967, p. 218; McCulloch 1930, p. 216. Also in the Bible, burning serpents (*serafim*) attacked the Israelites precisely when they approached the Arabah copper-mining area (Numbers 21:4–7): see Amzallag 2015b, pp. 114–116.

¹¹¹ Sauneron and Yoyotte 1959, pp. 33–38. Though he was not the only Egyptian god in close relation with serpents, it is noticeable that Ptah was related to the *primeval* snake, a feature revealing an essential link with this symbol: see Cruz-Uribe 1994, pp. 173, 188.

¹¹² Espak 2006, pp. 51–53.

¹¹³ Potts 2007.

¹¹⁴ Budge 1921, pp. 24–26.

¹¹⁵ Wiggermann 1997, pp. 44–46; Amiet 1977; 1979, pp. 348–350; Koch 1995, p. 1962; Grillot-Susini 2001; Roach 2008, pp. 107, 146–147, 185–192. This importance is confirmed by rock carvings depicting important processions to this snake-god sitting on a coiled snake: see Debevoise 1942, pp. 78–80.

¹¹⁶ Rothenberg 1988, p. 147; Benoist 2007.

apparently belongs to his pre-Israelite metallurgical background.¹¹⁷ Also in the Aegean, the Telkhines, the mythical metallurgists from the Bronze Age, are acknowledged for their spontaneous transformation into serpents.¹¹⁸

In parallel with its close relation with metallurgy, the serpent symbol became of central importance in Bronze Age religions. In Mesopotamia and Egypt, serpents are represented on public edifices, shrines, stamp seals and frescoes.¹¹⁹ They are carved on stones and painted on ceramics and ornamental vessels.¹²⁰ Furthermore, the serpent came to be associated with the bull, the traditional symbol of holiness in Near Eastern religions.¹²¹ The serpent symbolism of the forces of creation is attested by its identification with primeval gods and by the frequent involvement of a giant serpent in the mythologies of creation of the universe.¹²² The link between the serpent symbol and copper metallurgy, suggested here, supports the status of the latter as religious fundament in the Bronze Age.

The possible origin of the Bronze Age religious koine

The similar beliefs associated with metallurgy in many Bronze Age societies suggest that they might have a specific origin. The best candidate is the ancient Near East, because this region is regarded as the homeland of the Bronze Age religious koine.¹²³ In parallel, the Near East was also the nexus of the network of production and trade of metals in the ancient world, and the homeland of the development and diffusion of advanced techniques of metallurgy, especially the use of the furnace.¹²⁴ If this is so, one of the Near Eastern homelands of metallurgy might be at the source of this new religious universe.

Four independent homelands of metallurgy are currently identified in the ancient Near East between the eighth and fifth millennium BCE: the Iranian plateau, the Upper Euphrates area, southern Anatolia and the Southern Levant.¹²⁵ To these four homelands, we may add the Balkans, where native copper was melted from the fifth millennium BCE,¹²⁶ and the chemical analysis of crucible slag suggests that copper ore was smelted too from this time.¹²⁷

¹¹⁷ Amzallag 2015b; 2016.

¹¹⁸ Sergent 2004, pp. 543–544. For the metallurgical ascendant of the telkhines, see Sergent 2004, pp. 563–564; Blakely 2006, pp. 15–17, 152–157.

¹¹⁹ Buchanan 1967; Joines 1974, pp. 97–98; McDonald 1989, pp. 23–29, 113–121, 156. Porada 1993; McHugh 1990; Honoré 2007. The serpent's cultic importance is attested in the Chalcolithic Levant by the discovery of a ceramic snake head terracotta in a "public building" at Shiqmim: see Levy *et al.* 1991, pp. 33–34.

¹²⁰ Elliott 1977, p. 15.

¹²¹ This is revealed by the representation of horned serpents and by semantic associations between the two: see Amiet 1979; Barclay 2001. The intimacy of these two symbols is confirmed by the serpent being designated 'the bull' in some of the Ancient Egyptian religious texts. See Joines 1974, p. 248.

¹²² Charlesworth 2010, pp. 65–69, 232–243.

¹²³ Kristiansen and Larsson 2005, pp. 53–61.

¹²⁴ Amzallag 2009a.

¹²⁵ Pigott 1999; Amzallag 2009a; Rowan and Golden 2009, pp. 41–44; Meliksetian *et al.* 2011; Mehofer 2014.

¹²⁶ Jovanovic 1985; Glumac and Todd 1991; Gale *et al.* 2003.

¹²⁷ Gale *et al.* (2003, p. 161). The Varna area (Bulgaria) homeland, which might have potentially interacted with the ancient Near East at an early period. See Leusch *et al.* 2014; Radivojević and Kuzmanović-Cvetković 2014.

In Anatolia, native copper was hammered from the eighth millennium BC and thereafter molten in crucibles and smelted from the sixth millennium BCE.¹²⁸ In the northern Euphrates, as well, deposits of native copper were probably the source of the small copper artefacts produced from the eighth millennium BCE.¹²⁹ Later (in the fifth millennium BCE), native copper was melted in crucibles and cast in open moulds,¹³⁰ and slag analysis reveals the development of a genuine process of copper production from ore.¹³¹ A similar situation is encountered in the central Iranian Plateau, where malachite was mined from the ninth millennium BCE as a semi-precious stone or a pigment,¹³² native copper was cold-hammered from the seventh millennium BCE and molten copper was cast in open/bivalve moulds from the fifth millennium BCE.¹³³ Here again, some remains suggest that copper ore was smelted in crucibles from this time.¹³⁴

A similar sequence for the development of metallurgy is observed in all these homelands, from the hammering of native copper to the smelting of ore. In this evolution, the early production of copper was a crucible-smelting process that extended the mode of extraction, purification and casting of native metal in crucibles.¹³⁵ The only homeland displaying a different sequence is the Southern Levant, where native copper is absent, so metallurgy begins with copper production, here performed directly in a furnace.¹³⁶

This singularity of the South Levantine homeland of metallurgy finds a cultural parallel. In the homelands where metallurgy emerges gradually from the working of native metal, we observe continuity in material culture, and especially in symbolism, from the period preceding the emergence of metallurgy.¹³⁷ This suggests that the earliest stages of domestication of metals did not fundamentally modify the Neolithic societies and their universe of beliefs. The only homeland where substantial transformations in religious beliefs accompanied the emergence of metallurgy is the Southern Levant. There, the Ghassulian culture (c. 4500–3700 BCE) is characterised by the demise of the hierarchy ruling the Neolithic society and the emergence of a new type of sanctuaries, symbols, rituals and burial practices, all denoting the replacement of the Neolithic religious universe.¹³⁸ The synchronicity observed between the transformation of the symbolic universe and the development of metallurgy in the Southern Levant suggests that, unlike in all the other near Eastern homelands, this craft had a substantial religious dimension in this area from its very beginning.¹³⁹

¹²⁸ Yener 2000, pp. 17–25.

¹²⁹ Pigott 1996.

¹³⁰ Jovanovic 1988; Muhly 1989.

¹³¹ Ozbal *et al.* 2000; Hauptmann 2007, p. 158.

¹³² Hauptmann 2007, pp. 256–257; Pigott 1999, p. 73.

¹³³ This is revealed both by the increase in the size of artefacts and by the microstructure of the copper (see Pigott 1999, p. 73).

¹³⁴ Majidzadeh 1979; Pigott 1999, p. 77; Heskell and Lamberg-Karlovsky 1980.

¹³⁵ Amzallag 2009a, pp. 498–502.

¹³⁶ Amzallag 2009a, pp. 502–504.

¹³⁷ Todorova 1995, pp. 88–90; Sraka 2014, p. 385.

¹³⁸ Gosić 2013; Gosić and Gilead 2015b.

¹³⁹ Gosić 2013, pp. 281–284. Based on these findings, Gosić and Gilead (2015b, p. 171) suggest, that “the Ghassulian metallurgy introduced a new ritual behavior, starting with metal-smelting, through the shaping of the artifacts, to the use of the finished artifacts in rituals. Its transformational quality demonstrated the unprecedented control of smiths over the material world and suggests they were most influential members in their communities.”

Further observations confirm this premise. The outstanding development of the techniques of metallurgy, independently of perspectives of practical use and social hierarchy, demonstrates the cultural importance of this activity for the Ghassulians.¹⁴⁰ The exploitation of exotic ores, coming from afar, to make the alloys used in this metallurgy, devoid of blatant practical issues, supports this view.¹⁴¹ The parallel between the symbolism of the metallic implements from the Nahal Mishmar hoard and many Ghassulian ritual artefacts corroborates the interconnections between metallurgy and the universe of beliefs, from the beginning of the domestication of metals in the Southern Levant.¹⁴²

The cultural importance of copper metallurgy in the Southern Levant correlates with the singularities related to the emergence of this craft in this homeland:

- *Metallurgy as a creation of matter*: In all the other homelands of metallurgy, the production of copper from ore is an extension of the extraction of native copper from its mineral gangue. Metallurgy, in its earliest phases, extends, therefore, a process of transformation/cleaning. The Southern Levant, the only homeland of metallurgy in which native copper is absent, is therefore the most appropriate for approaching the production of copper as a genuine creation of matter.
- *Metallurgy and powers of rejuvenation*: The Southern Levant is characterised by the use of furnaces from the earliest stages of copper production.¹⁴³ This technique also makes possible the reduction of rust copper by remelting, and its interpretation as a rejuvenation process. Such 'regeneration' is impossible to perform in a crucible, charcoals (the reducing agent) lacking in the reactor. The homology between the furnace and the cauldron, combined with the symbolism of rejuvenation typically attached to this cultic artefact, confirm the special importance of furnace metallurgy in the expression of the powers of rejuvenation. This is why the other main cultural component of metallurgy, rejuvenation, probably issued from the Southern Levant homeland.

The cultural transformations associated with the development of Chalcolithic metallurgy in the Southern Levant may be identified as the earliest expressions of the new religious universe which would spread widely throughout the Bronze Age, in parallel with the spread of the techniques of furnace metallurgy.

Conclusion

The religious dimension of metallurgy has long been acknowledged.¹⁴⁴ But it has remained unclear why metallurgy had such great religious importance compared to all the other crafts. The present investigation shows that this singularity is closely related to the metallurgy of copper. It reveals that the contribution of copper metallurgy to the emergence of the Bronze Age koine

¹⁴⁰ Amzallag 2018, pp. 67–70, 72–73.

¹⁴¹ Shugar 2003.

¹⁴² Ilan and Rowan 2012, pp. 102–103.

¹⁴³ Amzallag 2009a.

¹⁴⁴ Mircea Eliade (1968, p. 76), for example, argued that "the discovery of metals and the progress of metallurgy radically modified the human mode of being in the universe. Not only did the manipulation of metals contribute considerably to man's conquest of the material world; it also changed his world of meaning. The metals opened for him a new mythological and religious universe."

goes far beyond the organisation of a network of international trade and the exchange of precious goods. Rather, its importance originates mainly from the interpretation of copper production as a demiurgic activity and the furnace as the site of the creation and rejuvenation of matter. This demiurgic dimension fits especially well with the mode of emergence of metallurgy in the Southern Levant, as well as the cultural importance of this activity as observed in that homeland. Consequently, the simplest conclusion is that the outstanding cultural dimension of metallurgy observed in the ancient Near East from the fourth millennium BCE originated from the singular context of the emergence of metallurgy in the Southern Levant. The rapid spread of furnace metallurgy from the Southern Levant to the whole Near East from the beginning of the fourth millennium BCE corroborates this conclusion, accounting for the earliest phases of the emergence of the Bronze Age cultural koine.¹⁴⁵

In light of the centrality of copper metallurgy, we may guess the techniques used in its production became a way to access the holy domain of the gods and to experience the fundamentals of a previously hidden reality. This outstanding conjunction made metallurgy the key to elaborating new religious concepts concerning procreation, healing, death and afterlife, and the processes of vitalisation. As reflected in the sudden popularity of the serpent symbol from the Copper Age, these elements transformed copper metallurgy into the nexus of a new set of religious beliefs.

Until now, the presumption of continuity between beliefs relative to copper and to iron metallurgy concealed most of these achievements. The production of iron and copper were interpreted similarly, as acts of transformation rather than creation of matter. This situation also emanates from the extrapolation to antiquity of metallurgical beliefs and rituals identified in traditional societies from Africa. Both approaches concealed the specific features of copper metallurgy and the metallurgical significance of the serpent symbol.

Considering metallurgy as a single category minimised the differences between the modes of metal production and their symbolism. The gathering of data from many homelands of metallurgy yielded general considerations, then obfuscating the singular developments of metallurgy emanating from a specific homeland, and its diffusion afar. It also concealed the central importance of the development of furnace metallurgy not only in mastering the smelting of copper, but also in the emergence of a new set of beliefs that gradually spread, together with the technique, all over the Near East and from there to the whole Bronze Age universe.

Whereas copper smelting was approached as a holy activity, the motivation for producing iron in the ancient Near East appears to have been profane from the beginning of the Iron Age.¹⁴⁶ Here again, this approach seems closely related to the development, from the end of the second millennium BCE, of a mode of production of iron that was symbolically interpreted as an act of transformation rather than the creation of matter. From civilising heroes and semi-gods, metalworkers became mere artisans in the Iron Age. In replacing copper as the main metal and source of power, iron gradually invalidated the Bronze Age conceptions of the universe conditioned by the experience of copper metallurgy. This is why the understanding of the ancient practice of copper metallurgy and its symbolism, once emancipated from anachronistic considerations, is expected to cast light on the Bronze Age religions, on the esoteric traditions attached to this craft, and even on the mystery cults extending them into the Iron Age.

¹⁴⁵ Amzallag 2009a.

¹⁴⁶ Gosden 2012, pp. 15–16.

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REVIEW ARTICLE

The lost tombs of ancient Egypt as a model for engagement and employment post COVID-19: a pandemic-inspired book review

Sharyn VOLK

Chris Naunton. *Searching for the Lost Tombs of Egypt*. London: Thames and Hudson, 2018. Pp. 288, 80 b/w plates, 24 colour plates. £19.95. ISBN 9780500051993 (hardcover).

Introduction

Will COVID-19 have a lasting effect on the teaching-research-engagement model in tertiary institutions? In Australia, in 2020 alone, the financial impact of the pandemic is estimated at \$3.8 billion.¹ As thousands of employment positions are cut as a consequence of the financial implications of the changes necessitated by the pandemic, it is hard to imagine workloads will remain unchanged. At the moment there is a notional 40/40/20 rule applied to time allocation of tenured academics.² In a five-day working week, this assumes two days teaching, two days conducting research activity, and one day allocated to community engagement and service. However, one could ask the question how many of us saw this time allotment to engagement proven at our institutions even before the pandemic; that is, a full-day commitment to service and engagement with community on a weekly basis. There are certainly instances where engagement initiatives and their promotion could be cynically interpreted as a marketing exercise in the quest for philanthropic support, or future student enrolments, rather than as an academic or community-minded pursuit. For instance, outreach educational programs at Australian higher education institutions are frequently designed with the intention of attracting students who are considering their options beyond their completion of secondary school. Research exploring the relationship between academics and their communities, including an examination of how engagement activities are rewarded, is scarce, and a disconnect between stated commitments to engagement and the reality of actual practice is evident.³

¹ Tjia *et al.* 2020, p. 1.

² Ross and McKie 2020.

³ Kelly 2019, pp. 32–33.

The new reality begs the question of how much further the theoretical 40/40/20 rule can be skewed to meet realities in higher education. We are already seeing tenured academics being asked to spend more time on teaching.⁴ One university reportedly triggered a dispute with the National Tertiary Education Union because it sought to amend its enterprise agreement with staff to reflect a requirement that up to 80 per cent of time be spent on teaching.⁵ This is intricately linked to university funding structures in Australia which have come to depend heavily on attracting international students,⁶ and the production of high research outputs to ensure ongoing research funding. While the teaching gap has in the past been filled by sessional appointments, which in times of financial challenge are the first to disappear, the loss of international student income has meant that tenured staff are being asked to increase their teaching workload to offset the loss. While the detriment to teaching structures and staff security has gained much attention, as casual staff rightfully demand they not be treated as disposable, the effects on engagement activities have not been as widely reported. As budgets are tightened to protect institutional finances, the activities that could help to revitalise our universities in the 21st century have been largely put on the back burner.⁷

You might be asking yourself at this point what on earth any of this has to do with a book review. Books are of course key research outputs and are counted obsessively as markers of academic success. However, much as we allocate value variances to different academic activities, books are also still graded based on a range of factors: their publishers, topics and their audiences. *Searching for the Lost Tombs of Egypt*, authored by Dr Christopher Naunton, is a public-oriented book first published in hardcover in 2018. Dr Naunton is a well-known British Egyptologist who is the immediate past president of the International Association of Egyptologists (IAE), and prior to that the Director of the London-based Egypt Exploration Society. Despite Naunton's accolades, academic reviews for the book have not been forthcoming. I would contend that the reason why the book has been met by the academy with such resounding silence reflects what has become known as the 'Carl Sagan effect'. This expression was coined when Sagan, an American astronomer and science 'populist', was in 1991 denied admission to membership of the National Academy of Sciences. This rejection was interpreted as being the direct consequence of a belief that scientists who were highly visible in the public realm were less worthy academics than those who did not share such a high profile.

In an article published 25 years after Sagan's nomination, Martinez-Conde considers the question of whether or not contemporary academia has moved beyond the Carl Sagan effect.⁸ She revisits the notion that scientists who engage in outreach activities are less successful than those who are not at the public forefront, and concludes public-facing dissemination activity may impede a successful career in academia, especially if the scientist engaging in this activity is seen as junior.⁹ However, engagement activities and publications are essential to opening and diversifying our

⁴ Ross 2020.

⁵ Ross 2020.

⁶ See Tjia *et al.* 2020, pp. 21–27 for data relevant to the 2019 year detailing international student fee revenue and total revenue. At one institution at the high end of the range international student revenue represents 38.76% of the total.

⁷ Jay 2010.

⁸ Martinez-Conde 2016.

⁹ Martinez-Conde 2016, pp. 2077, 2081.

institutions and highlighting the relevance of our work to the public. This is particularly the case for the humanities, which has long been under threat by government models that question its usefulness to the needs of present-day Australians.¹⁰ In order to challenge these models it is vitally important, and indeed necessary, that academics support all levels of outreach initiatives by valuing them at the same level as other research products.

Searching for the Lost Tombs of Egypt

From the very first page of the introduction to *Searching for the Lost Tombs of Egypt*, the language chosen by the author suggests the book was not intended as a text written only for specialists in the field; the pharaoh is described as “the man at the top” and one of the reasons nominated as motivation for rediscovery was “just to make a fast buck” (p. 7). Naunton unashamedly refers to the subjects of each of his chapters as “ancient celebrities” (p. 8) and he promises consideration of the so-called Lost Tombs across the span of the pharaonic period; from Imhotep in the Old Kingdom, to the new Kingdom Amenhotep I and royals of the Amarna period, including of course the enigmatic Nefertiti, the Third Intermediate Period army general Herihor, and then finally Alexander the Great and Cleopatra. This is a huge amount of material to significantly address in 248 pages of text. In noting this potential for only surface-level investigation however, I remain mindful of the proverbial wolf in sheep’s clothing, or perhaps in this case, something more akin to a gourmet burger in the guise of fast food — able to be consumed without serious scrutiny but revealing complexity on deeper contemplation of the experience.

The first tomb in Naunton’s seven-chapter search is that of Imhotep, understood as the architect of the Step Pyramid of King Djoser, located at the Saqqara necropolis. It is presumed that the tomb of Imhotep would be located nearby the Step Pyramid given his important position in the royal court of Djoser. Chapter 1 provides background to the site, the person who was Imhotep, and then undertakes an extensive review of the work of W. B. (Bryan) Emery at Saqqara. Emery commenced his longstanding relationship with this site in a very productive first excavation season in 1935, and that passion continued through to his final expedition in 1971 during which he suffered a stroke, and subsequently died a few days later in the Anglo-American hospital in Cairo. The chapter goes on to consider the more recent excavation work in the area including the 2002 finds of the team from the Institute of Egyptology at Japan’s Waseda University, and the 2005 exploration conducted by the Polish-Egyptian Archaeological Mission. A long-term project investigating topography, headed by Scottish surveyor Ian Mathieson, and ongoing in the region since 1991, is also summarised. The aim of Mathieson’s work was to demonstrate the potential of non-invasive investigation, which was subsequently proven in the 2007 publication of his survey, by which time he had attained the age of 80 years. Mathieson died three years later without locating the tomb. Like Emery before him, he would have to pass this baton on to others who could continue his work. The tomb of Imhotep is therefore an excellent starting point because in Naunton’s words at the conclusion of Chapter 1, “the tomb of Imhotep may yet be lying quietly beneath the sands, a sensational discovery awaiting the next generation of archaeologists” (p. 56).

¹⁰ Doidge and Doyle 2020.

The second chapter is seemingly about to take a giant leap through many centuries into the New Kingdom and the mystery of the tomb of Amenhotep I. This does not happen however, as background is provided to the development of the style of funereal monuments starting in the Old Kingdom. Particular attention is paid to the idea that the tomb of the subject pharaoh may have been the first example of an interment site intentionally hidden from view to protect the owner and tomb contents from defacement and robbery. This inaccessibility would also, therefore, have required a separate cult centre be established to ensure a place for the necessary post-mortem performative rituals. Four tomb site candidates for Amenhotep I are considered although one is immediately discounted as unlikely. The Abbott Papyrus, a scroll recording 20th dynasty tomb inspections, is nominated as providing a vital clue as to the location of the missing tomb.¹¹ Its text describes the tomb of Amenhotep I as the place at which the stela marking the tomb is 120 cubits north of the house of Amenhotep of the Garden (p. 76). This could be assumed to be valuable information but, as Naunton points out, there is no definitive understanding of what is meant by 'the stela' and although the 'house' might be a cult centre, neither is that a known specific point, although there are many options. The first of the three most likely candidates is KV39, a tomb to the south of the main section of the Valley of the Kings which was first rediscovered by two locals in the late 19th century and then subsequently investigated by a team led by Arthur Weigall in 1908. The arguments to support this proposition are explored, but it is then noted that this idea was almost immediately rebutted by Howard Carter who had formulated his own theory suggesting the tomb was located at a high point in the Dra Abu el-Naga cemetery which he designated AN-B. Naunton confirms that at the time of his rebuttal Carter would have been aware that the mummies of both Amenhotep I and his mother had been identified as one of the group found in the 'royal cache' TT 320. The third possibility is the product of the excavation work undertaken by a mission under the auspices of the German Archaeological Institute in Cairo directed by Dr Daniel Polz. This is a substantial tomb complex, most likely royal, dated to the late 17th or early 18th dynasty, and located high on the Dra Abu el-Naga hillside. All three of the most likely locations are tombs which have already been rediscovered, while the fourth possibility refers to an area in which a tomb might still be located; the site of the Polish-Egyptian Clifftop Mission to Deir el-Bahri. In keeping with the style of language used throughout the book, Naunton describes the work being undertaken at this site as "one of the most improbable, incredible but ultimately fascinating excavation projects currently underway anywhere in Egypt" (p. 84). He goes on to describe the project under the direction of Professor Andrzej Niwinski of Warsaw University, as representing "something quintessentially Egyptological" (p. 89) because of its improbability. Despite Naunton nominating this site as offering the weakest support argument because a tomb has not been located, all readers of this book would register his unmistakeable excitement regarding the potential of what the project may yet reveal.

As an excitement generator, nothing comes close to the celebrity of Tutankhamun, the young king whose tomb was rediscovered in the Valley of the Kings by Howard Carter during his 1922 explorations. Although he is popularly known by the name associating him with the god Amun he was prior to that Tutankhaten, the last pharaoh of the Amarna Period. It is the missing royals from this time who are the subject of Chapter 3, at 45 pages the longest in the book. The chapter

¹¹ The British Museum. Accession number EA 10221.

is introduced by acknowledging the Egyptomania inspired by Carter's find and it then considers the history of the family of Amenhotep IV, known more commonly as Akhenaten; the heretic king who upended the ancient Egyptian belief system, culminating in the construction of a new capital city in Middle Egypt which he named Akhetaten, the remains of which are located at the site of Tell el-Amarna. Despite this period of disruption being a brief 12 years, the extent of the changes that were wrought and the celebrity status of the Amarna royals continue to inspire research and archaeological investigation. Naunton is especially interested in Nefertiti, Akhenaten's Great Royal Wife, and the mysterious pharaoh Smenkhkare. The questions nominated as requiring answers include: who was the pharaoh immediately following Akhenaten, how many royal family members were either independent or co-regents, where are their burial sites, can their remains be identified, could all of these puzzle pieces already exist although not yet put together, or are they still waiting to be rediscovered? In attempting to answer these questions, almost nine pages are devoted to the consideration of the royal tomb at Amarna, followed by a brief overview of other tombs in the royal wadi. The intrigue surrounding the contents of KV55, far removed from Amarna, is considered from the time of its discovery to the most recent research. As indicated at the beginning of the chapter the tumultuous nature of this period of rule inevitably presents additional complications for those trying to piece together the evidence; as it provoked disinterment, reburial, infliction of intentional damage, and the reuse of tomb goods, especially those recovered in KV62. Quite an extensive discussion in two parts is devoted to the tomb of Nefertiti, and especially the theory proposed by Nicholas Reeves, and the work undertaken to prove or disprove the notion that her tomb lies behind the walls of KV62. The potential for the KV35 mummy cache holding the key to some of the Amarna mysteries is presented, and recent archaeological projects with a stated intention of locating Amarna royal tombs are summarised. In just over a single page Naunton proposes a reconstruction of the death and interment of the Amarna royal family members, at the end of which he acknowledges there would be many who would disagree. The chapter concludes with reinforcement of the notion that "the tombs of some of the most famous individuals from the ancient world, including Nefertiti, are yet to be found" (p. 135).

Chapter 4 investigates the potential locations for the missing tomb of Herihor, a military commander under Rameses XI who subsequently accrued titles including elevation to the Chief Priest of Amun; by way of unconventional manoeuvring, he enjoyed the same status as pharaoh during his time of exerting control in Upper Egypt. The subheading to this chapter maintains language intended to excite: A tomb to 'make Tutankhamun look like Woolworths'. The demise of the New Kingdom and the abandonment of the Valley of the Kings as the preferred royal burial ground is briefly considered, prior to an examination of the history of the rediscovery in 1881 of another royal mummy cache, TT320. Ten of the forty mummies in TT320 were those of pharaohs from the 17th through to the 20th dynasties, including those which Naunton describes as "some of the most famous individuals from the ancient world" (p. 147). The finds of the two important caches, KV35 and TT320, did not, however, account for all missing mummies, which Naunton notes led to the belief that there was another cemetery of high-status burials yet to be located. This statement is the launching point for a review of British Egyptologist John Romer's ambition to locate the tomb of Herihor, an intention that was declared publicly in a BBC television series which aired in 1982. It is to one of the episodes of this television series that Naunton refers with his chapter

title. Romer is described as not fitting the mould of the Egyptological establishment; perhaps another reason why his explorations held appeal within the context of Lost Tombs. Romer's employment of Howard Carter's 1916–17 fieldwork notes with his own research is well described, as are his unsuccessful efforts to achieve his goal. In 2013 a team led by Professor Geoffrey Martin and Piers Litherland, under the auspices of the New Kingdom Research Foundation, were granted permission by the Egyptian Ministry of Antiquities to re-examine the site. The successful work undertaken by this team is briefly examined, including their 2015 announcement of their rediscovery of a series of tombs dated to the 18th dynasty and their belief that more finds of this date are far more likely than the focus of Romer's quest, the tomb of Herihor. Naunton explains his belief that if the tomb of Herihor is found it will in all likelihood be only a simple burial rather than one containing tomb goods which shade those of Tutankhamun; he does, however, go on to describe the beautiful gold armband held in a museum collection in Germany which unquestionably belongs to the Herihor who features in this chapter. The existence of this find decontextualised in a museum collection of course suggests that, if found, the tomb will not be intact. In the final pages of the chapter, the work of Professor Niwinski who we met in Chapter 2, is reintroduced; he has proposed the missing tomb of Amenhotep I was reused for Herihor, although on the basis of existing evidence Naunton is unable to support this theory. In conclusion to this chapter however, he acknowledges that an almost total absence of grave goods and a body "is puzzling" (p. 164).

Chapter 5 considers the missing royal tombs of Third Intermediate Period pharaohs. From a scholar's standpoint this period of ancient Egyptian history is somewhat confusing because of the inability to reconcile archaeological and textual records; if nothing else the succinct summary Naunton provides of the various theories regarding rulers, their names, locations, and length of rule, is valuable. Of note within the context of this chapter, and indeed as a comparison to the reaction to the 1922 reopening of KV62, is the site of Tanis in the delta. The work led by French archaeologist Pierre Montet, which commenced in 1928 is summarised. During his multiple expeditions Montet located three royal tombs, the highlight of which was the 1940 find of the intact resting place of the 22nd dynasty king Psusennes I. As noted by Naunton, if not for the rediscovery of Tutankhamun's tomb twelve years previous, and of course the events of the early years of the Second World War, Psusennes I and Montet would occupy the place in folklore that had already been inhabited by the boy king and Howard Carter. The extent of reuse of tomb goods at Tanis burial sites also contributed to archaeologist confusion, and examples of this are detailed. Alternative locations for the interment of the first two pharaohs of the 21st dynasty, Sheshonq I and Osorkon I, are considered as are the arguments for the potential of Memphis as a Third Intermediate Period royal cemetery. The discussion exploring the chronological overlap of rulers at different places, not only between the more widely understood north and south division, is especially interesting, as is the history of the rediscovery of the tombs of the pharaoh Harsiesi, and the Divine Adoratrice Karomama, at Thebes. Although the subtitle of this chapter is 'The royal tombs of the Third Intermediate Period', Naunton includes some commentary regarding the missing tombs of 26th dynasty pharaohs, the first dynasty of the Late Period, prior to offering concluding remarks to the chapter. I am unsure as to the reason why a separate chapter was not devoted to the missing tombs of the Saite kings given they were deemed sufficiently worthy to be allocated more than a passing mention; indeed in the closing paragraph the recent find in Dakahlia province, where excavations were initially thought to

have rediscovered the tomb of Psamtek I, is noted as support for the huge potential for new finds to significantly change our understanding of this period in ancient Egyptian history.

There is no questioning Alexander the Great's membership in the ancient world 'vanished celebrity' club and his tomb or tombs are the subject of Chapter 6. Alexander's achievements in only thirty-two years of a life which was abruptly cut short by his death in Babylon in 323 BCE are astounding. There is also no denying the soap opera-esque nature of the struggle between his companions all attempting to be recognised as his successor, especially evident in the efforts of Perdiccas and Ptolemy, the latter finally winning the day. Naunton distils this battle for supremacy into a fast-moving narration of fewer than three pages, before he considers the three potential sites for the tomb location with support for his theories offered by the writings of Diodorus Siculus and Strabo in the first century BCE, Lucan and Pausanias in the first and second centuries CE, through to the 16th-century diplomat Africanus, and Denon who accompanied Napoleon on his expedition to Egypt at the end of the 18th century. During the period when Ptolemy was consolidating his position, evidence is presented for an initial interment at a site near the Serapeum of the Apis bulls at Saqqara, the necropolis for the ancient Egyptian capital Memphis. The Ptolemaic cult building bounded by the end of the ancient avenue of sphinxes, and the site of the hemicycle of philosophers, is posited as the specific location. The use of the sarcophagus originally intended for Nectanebo II, the final Egyptian pharaoh, is noted as an opportunity seized by Ptolemy to further legitimise Alexander's rule and then, in turn, his own. That Alexander's mummified remains were moved to Alexandria, his originally intended final resting place, is nominated by Naunton as being quite clear. In 2020 Andrew Chugg, whose 2004 publication Naunton cites in Chapter 6, and his co-author Michael Habicht published a study titled *The Lost Tombs of the Last Pharaohs*. In this volume, they support the proposition that the sarcophagus of Nectanebo II, now in the collection at the British Museum, is in fact the original vessel in which Alexander's body was placed. They also assert that a sculpted block depicting a shield with a starburst emblem, recovered in the foundations of the Basilica di San Marco in Venice, is recognised as the badge of Alexander's family. This find supports the theory that the bones contained within the altar of the basilica are not those of St Mark, but rather those of Alexander.¹² Notwithstanding the location of the remains, as the title of the book under review refers to a search for tombs rather than remains, the potential for tomb location in Alexandria is paramount. Was Alexander's body welcomed to the city of Alexandria as an aspect of the Ptolemaia celebrations in 275–274 BCE? Were there two places where the sarcophagus and its contents were honoured prior to the removal of a sarcophagus from the Attarine mosque to a French ship by Napoleon's savants? Ultimately, the sarcophagus would find its way to Britain in the same armistice negotiations that would allow the Rosetta Stone to find its way from French hands to London. Naunton explores the evidence supporting the Alexandria locations for the tomb but ultimately concludes although one or even both of the tombs may yet be rediscovered it is unlikely they would be intact because of the social upheavals and catastrophic climatic events experienced in Alexandria through the centuries. The question of the bones at the Venetian basilica only add to the intrigue of this story.

Chapter 7 considers two potential locations for the tomb of Queen Cleopatra, whose fame persists thanks to writers and playwrights from the early centuries CE through to our own time.

¹² For a summary of this proposition see Chugg 2020.

The circumstances of her rise to power and her death are summarised, and it is suggested that even without the benefit of the classical sources it could be expected Cleopatra's burial would be "in or around Alexandria" (p. 234) the capital city of Egypt at that time. The writings of Strabo, which describe the legendary lighthouse at the entrance to the harbour and a royal palace located on the promontory Lochias, are cited in support of the argument that the royal precinct has been lost to the sea, perhaps during the catastrophic tsunami which occurred on 21st July 365 CE. The recent work of underwater archaeologists in the area, and their published findings, support the notion that Cleopatra's burial monument lies beneath the ocean surface just off the coast of Alexandria. Although acknowledging this as the most likely scenario for the location of the lost tomb, Taposiris Magna where Kathleen Martínez has led a project since 2005, is also considered as a potential tomb location. The work at this site was launched in an attempt to prove the theory that Cleopatra was interred with Mark Antony inside the temple at Taposiris Magna which is dedicated to Isis and Osiris; the final resting place of the couple thus reflecting their association with the goddess and god. In keeping with the mood in which the book is framed, the degree to which this theory has garnered media and public attention is noted by Naunton, especially in terms of the ability of this attention to create a perception that the site is a definite possibility, despite the lack of published data, nor the recovery of any evidence to support the theory. Naunton suggests at the close of this chapter that notwithstanding the lack of evidentiary support for the Taposiris Magna proposition, a theory which is able to capture the public imagination, raise the profile of an archaeological site and encourage conversation and interest, "can only be a good thing" (p. 248).

Reflections

In closing his book, Naunton acknowledges the notion of tomb hunting may be populist in its approach. However, he also notes that the ability of this terminology to generate interest has become an integral aspect of the discipline's public popularity and image. As previously observed, there is no mistaking an intentional choice of language in this book which may leave the author open to accusations of 'celebrification'. This proposition is illustrated in Naunton's comments regarding the provocative paper published by Nicholas Reeves. In the section of Chapter 3 which considers Nicholas Reeves' theory regarding the tomb of Nefertiti, he states 'There are Egyptologists who consider such sensationalism to be unworthy of serious scholarship'.¹³ Naunton expands on this comment by noting that the discipline of Egyptology has thrived because of its ability to capture public imagination whether by reading books, watching documentaries, visiting exhibitions or Egypt itself. He expresses his admiration for Reeves for his willingness to embrace his theory when he must have known it would not be accepted by many of his colleagues. Perhaps the reaction in some quarters to Reeves' proposition reflects how Naunton himself feels about the reception of some in the academy to his book.

Museums all over the world are replete with the objects that have been excavated, and indeed stolen, by the colonists, archaeologists and robbers who are mentioned in *Searching for the Lost Tombs of Egypt*. Egyptology is a discipline that has been called out frequently because of its deeply embedded origins in colonialism. Despite what could be interpreted as an initial misstep in a brief

¹³ Naunton 2018, p. 120.

commentary on the Black Lives Matter movement, Naunton is now publicly engaging with scholars more familiar with the challenges faced by those working to rectify this longstanding problem which is finally garnering the attention it deserves, including someone who suggested in response to a social media post that Egyptology as a discipline should be dismantled. Naunton wrote in a blog posted to his website on 23rd July 2020, "I'm posting this in the hope of bringing the debate to a wider audience, and of learning more myself, and absolutely welcome comments, criticisms, additions".¹⁴ As Naunton learns more he will in turn disseminate this knowledge to his various communities, who through this information sharing process become more informed and encouraged to act as advocates for change. This consideration of the decolonisation debate provides an example of what might be achieved when someone with a recognised ability to attract a readership across a broad audience spectrum is able to engage efficiently.

Undoubtedly the public profile Naunton had established prior to publication encouraged book sales, but beyond that, the stories presented in these chapters provided a baseline for a range of engagement activities. Before publishing his book, Naunton had explored the potential of the stories he planned to tell in a series of talks which addressed both the broader concept, and also single sites such as the tomb of Nefertiti, especially in light of the Reeves proposition. Following the book launch, he was able to embark on the normal range of promotional activities organised by his publisher to drive sales, but additionally, he was engaged by a tour company which specialises in tours to Egypt, to lead small-group tours to Egypt tracing the path of the Lost Tombs. His participation in television productions prior to, and since book publication established and then enhanced a public profile which guaranteed an enthusiastic response to the Lost Tombs tours, and to other tours to Egypt and Sudan. In the period of COVID lockdowns, he has presented a series of ticketed lectures scheduled at times of the day which ensure worldwide audience accessibility. Naunton's professional website provides an excellent illustration of his multi-layered approach and how that can generate income.¹⁵ The growth of his audience most certainly occurred by design rather than accident.

In developing a taxonomy of five practices in engagement,¹⁶ Barker notes the importance of such a framework for engaged scholars to ensure they can more easily make a case for the value of their work compared to that of the traditional research model.¹⁷ Naunton's engagement with the communities he has built up, and with whom he interacts through his range of public-facing and readily accessible activities, can certainly be understood as Civic Literacy within the taxonomy formulated by Barker. In explanation of the model, Barker notes the importance of this type of engagement because it ensures public decision-making is educated and informed.¹⁸ In brief observation, Naunton might not be recognised as achieving this in his talks and tours, which could easily be interpreted as simple information sharing from an expert to a layperson. Additionally, information dissemination in the lecture and tour environment is constrained by factors such as geography and cost. The gathering of followers in the social media sphere however, ensures his

¹⁴ <https://chrisnaunton.com/2020/07/23/decolonising-egyptology-the-dirty-little-secret/> (accessed 10th September 2020).

¹⁵ <https://chrisnaunton.com/>

¹⁶ Barker's Five Practices are Public Scholarship, Participatory Research, Community Partnerships, Public Information Networks and Civic Literacy Scholarship.

¹⁷ Barker 2004.

¹⁸ Barker 2004, p. 132.

voice is heard and relevant issues addressed within a far more accessible, unintimidating and friendly environment. Of course, Naunton also has many academics who engage with him on his social media channels, so given this wide range of viewership, he is effectively creating a conduit between experts in the subject area and those whose interest could be interpreted as leisurely. Naunton was certainly active in the social media sphere in the early stages of its ascendancy and, given the demographic of early adopter social media users, I would suggest that the ability this media offered him to reach out to the younger members of the Egyptological community should not be underestimated in terms of the influence they were able to exercise in voting him into the presidency of the IAE. Were some traditionalists critical of this kind of campaigning? Yes, they probably were, and even now, despite the proven ability of social media channels to disseminate information widely and efficiently, many academics and some institutions actively oppose the idea of scholars maintaining any presence at all on these platforms.

Many people remember the moment their interest in something was first aroused by a meaningful engagement. A drily written narrative is not as likely to arouse passion as is a many-faceted, multimedia approach to knowledge sharing. I therefore commend the methodology adopted by Naunton; what I find especially exciting about the career model he has established for himself is that it presents an alternative way forward which has equal application across all fields of study. Regular activity across social media channels, articles in academic journals but also in popular magazines, webinars which can be attended by anyone interested either at zero cost or sometimes for a small fee, book publication and of course the potential for more talks and then guided visits to the places which are the subject of the various activities. This may all sound quite straightforward and I recognise that each of the activities which have been mentioned in this review article have been undertaken by many academics over many years.¹⁹ The development and nurturing of an audience and a full portfolio of engagement work however, requires careful crafting to be impactful, and this is certainly what Naunton has been able to achieve as a result of his penning *Searching for the Lost Tombs of Egypt*. At the time of writing this article, his second book has just been released so I will look forward to seeing whether the engagement model he has developed will be further expanded. To date Naunton has satisfied a fundamental tenet of engaged scholarship; there is a reciprocity in learning which occurs in the sharing of ideas within these environments, thus providing what Barker describes as “opportunities for greater experimentation in the production of academic knowledge”.²⁰

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¹⁹ Most recently, as the writing of this review is completed in October 2020, I note that Professor Toby Wilkinson is leading a tour to Egypt in 2021 which is advertised as inspired by his latest publication. Professor Wilkinson has published extensively and featured in television documentaries but does not have a social media profile.

²⁰ Barker 2004, p. 127.

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BOOK REVIEWS

Yosef Garfinkel, Saar Ganor, and Michael G. Hasel. *In the Footsteps of King David: Revelations from a Biblical City*. London: Thames and Hudson, 2018. Pp. 256. £24.95. ISBN 9780500052013.

This publication presents arguments supporting a historical Judahite monarchy of David and Solomon using geographic, textual, and archaeological evidence from the Hebrew University excavations at Khirbet Qeiyafa. It is intended for a non-specialist audience, written with a clear, understandable tone without jargon. This book consists of nine chapters and an appendix in which the authors connect the excavated architecture and finds to their concept of the United Monarchy and the Hebrew Bible as well as their identification of Khirbet Qeiyafa as the biblical site of Shaaraim (Joshua 15:36; 1 Samuel 17:52).

The first chapter sets the stage for the discussion by outlining the interaction and conflict between the Philistines and ancient Israel in the Hebrew Bible within the geographic context of the Soreq and Elah valleys. Khirbet Qeiyafa served as a border site between Judah and Philistia, and its role in the David and Goliath conflict is reconstructed by the authors based on the geographical and geopolitical realities reflected in the biblical narrative.

The second chapter focuses on David and his kingdom, giving a summary portrait of the biblical figure, after which the authors present their work at Khirbet Qeiyafa as a foil for biblical minimalism. An epistemological discussion for the ancient world identifies the benefits and drawbacks of archaeological excavation, archaeological survey, and the biblical tradition. By explaining what can and cannot be known through these sources of information about a kingdom of Judah, the authors discuss the reliability of each source and the difficulty in discovering preserved material culture and the complexity of assessing the Bible as a historical text. Khirbet Qeiyafa is proffered as a site to assess the biblical narratives about David's kingdom. After describing various paradigms about the Davidic kingdom employed by scholars, the authors are cautious to distinguish between the United Monarchy and the kingdom of Judah and propose their own kingdom of Judah paradigm in order to better understand the site and the kingdom of David.

The third chapter is the most substantial chapter in the book. It details the history of investigation at Khirbet Qeiyafa, discusses the development of the excavation project led by the authors with a description of a typical excavation day and other details about excavation life, and describes the architecture of each excavation area. The primary focus of the chapter is the site's two gates and their plazas (promoting the identification as biblical Shaaraim), casemate walls, and numerous rooms, and the interpretation of these features in relation to the Judahite monarchy. Additionally, dating methods and their results as well as how ancient cities and buildings were constructed, conservation and preservation efforts at the site are explained. Interpretations of the architecture's date and function, together with the physical setting of Khirbet Qeiyafa, are used in a later seventh chapter to discuss David's kingdom in terms of settlement hierarchy, in which Khirbet Qeiyafa is on the same tier as Jerusalem and Hebron, and social organisation in Iron Age Judah.

The fourth chapter discusses the finds from Khirbet Qeiyafa, explaining the utility of ceramic seriation and typology. The pottery corpus, dated to the Iron IIA, is described by form with attention given to numerous finger-impressed storage jar handles and examples of decorated Philistine pottery. Other artefact groups such as stone objects and weights, metal weapons, and smaller items are all generally described without technical jargon. Their importance with regards to the site and its chronological and geographic contexts are related.

Discussion in the fifth chapter centres on two inscriptions found at Khirbet Qeiyafa. While the chapter includes discussions of various letters and words in each line of the noted Khirbet Qeiyafa inscription based on the work of several noted epigraphers, full transcription(s) and translation(s) of the text comparing differing interpretations would have been welcome. Based on the two examples of writing, and two others from Judah dating to the same period, the authors assert that historical memories could have been written and preserved.

An examination of Judahite cult prior to the construction of the temple in Jerusalem comprises the sixth chapter. The authors describe three rooms and several installations related to cult at Khirbet Qeiyafa. The cult rooms were found to contain a wealth of cultic objects.¹ The authors regard such finds as illustrative of cult practices trending towards the monotheism and aniconism described in the Hebrew Bible. Additionally, in the book's eighth chapter, a temple model executed in stone is interpreted by the authors as providing architectural parallels on a small scale for Solomon's palace and the temple.

The final chapter connects the Hebrew Bible, history, and archaeology, using Khirbet Qeiyafa and its finds. Abandonment and concentration into fortified centres in the 11th century BCE fit the rise of the United Monarchy in the Bible and prompted the construction of the walled settlement at Khirbet Qeiyafa. According to the authors, Khirbet Qeiyafa exemplifies a fortified centre functioning within a centralised military and economic administration. Cult rooms and their objects parallel the archaeological and biblical records. The stone temple model not only illustrates the temple built by Solomon in Jerusalem but also the organisation needed to build projects like the temple and other monumental buildings and fortifications in Jerusalem. The authors emphasise how these connections are counter to minimalism and how Khirbet Qeiyafa illustrates the historical record of the Bible. In the authors' estimation, the site epitomises a biblical fortified centre, satisfies questions about the location of Shaaraim, and proves that literacy was present in some degree that could have recorded historical events that would later be incorporated into the Hebrew Bible.

An appendix relates the finds from the late Persian–early Hellenistic period at Khirbet Qeiyafa. The Persian and Hellenistic period coins indicate that Khirbet Qeiyafa was occupied from the latter half of the fourth century BCE – c. mid-third century BCE with changes made to the Iron Age architecture. Small finds from this period include items of personal adornment and equid figurines.

The authors should be commended for a publication accessible to a non-specialist audience. The volume is well illustrated with colour photographs, maps, building and site plans, detailed artefact drawings, reconstructions, and woodcut illustrations of biblical scenes with minimal typographic errors. The authors shouldered the difficult task of making archaeological arguments and data relevant and relatable for their readership. This book is clearly not written to persuade an academic audience with a preponderance of data; rather, it is meant to address the interested lay reader whose knowledge of the issues and debates surrounding Iron Age chronology is not assumed. In certain places, the reader may feel the goal of this book is to foil modern scholarship and “prove” the Bible to be a valid historical record solely based on one site and that Khirbet Qeiyafa conveniently answers nearly every question about the United Monarchy raised by scholars. The views expressed in this book and elsewhere are not without critique and disagreement over such interpretations of the site and its finds.² However, it should be realised that while interpretations differ, the authors have excavated and presented to both academic and lay audiences an 11th–10th century BCE site in the Shephelah prompting renewed consideration of urban planning, commodities production and distribution, cult, regional settlement dynamics, and even the United Monarchy in the early Iron Age IIA.

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¹ A figurine head not found in a cultic context may be a representation of a deity; see Garfinkel 2018.

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Benjamin J. Noonan. *Non-Semitic Loanwords in the Hebrew Bible. A Lexicon of Language Contact* (Linguistic Studies in Ancient West Semitic 14). University Park, PA: Eisenbrauns, 2019. Pp. xxxv + 512. \$149.95. ISBN 9781575067742 (hardcover and e-book).

There is a current and very welcome trend in ancient Near Eastern studies of re-examining and re-appraising previous suggestions that have been made concerning loanwords, for example, Rafael Rosół's critical survey of all the proposed Semitic borrowings in Greek.¹ The book under review here, focusing mainly on Biblical Hebrew and Aramaic, fits within this trend and is intended to be as comprehensive as possible. Since, as the author shows in his preliminary survey of previous work, "no up-to-date, comprehensive study of foreign loanwords in the Hebrew Bible exists" (p. 6), clearly this book is very welcome.

The introduction (Chapter 1) deals with the history of previous research, the corpus and parameters of this book and the terminology used. To identify loanwords, the author sets out the following criteria: the presence of (1) abnormal phonology and morphology, (2) no apparent Semitic root or etymology and (3) variant spellings; also (4) the geographical or ecological association of a word; (5) its context and (6) semantic domain. Of course, these can only be indicative. He also discusses the mechanisms of borrowing and loanwords as cultural symbols. Chapter 2 is on non-Semitic contact in ancient Palestine with Egyptians, Greeks, Hittites and Luwians, Hurrians, Indo-Aryans and Iranians.

Not unexpectedly, the bulk of this book (Chapter 3, pp. 33–234) focuses on non-Semitic loanwords in the Hebrew Bible and deals with 135 words, but no proper nouns are included. It presents "235 different loan hypotheses for Biblical Hebrew and Biblical Aramaic terms considered to be of foreign origin" (p. 235) and generally speaking, "when determining whether a foreign loanword is transmitted or not, this study errs on the side of direct loans" (p. 16). Each lemma for a Hebrew or Aramaic word provides a gloss, references to the two main dictionaries of Biblical Hebrew,² a list of all its occurrences in the Bible, the translations given in the versions and then the equivalents in Semitic and non-Semitic languages. This is followed by a discussion of the word's meaning, with a critique of the various proposals made, and finally a conclusion. It is particularly significant that where possible, the cultural and archaeological context of the word is presented and its co-occurrence with significant lexical terms in biblical and ancient texts is taken into account.

Chapter 4 is a detailed analysis of the information collected. It analyses the data for 135 direct loanwords, taking into account evidence for original dialect, date of borrowing, and contact with foreigners. After an explanation of the methodology and terminology used, there is a section on the distribution of loanwords in the Hebrew Bible, and the most influential languages. As the author explains, the Bible includes foreign terminology in both its Hebrew and Aramaic sections, mainly from Egyptian and Old Iranian, which both

¹ Rosół 2013a; see also Rosół 2018; Oreshko 2018.

² Koehler and Baumgartner 1994–2000; Clines 1993–2001.

historically and culturally is not surprising (p. 240). Next come sections on the statistics for loanwords and the canonical divisions (Torah, Prophets, Writings), on the source-critical divisions of the Pentateuch, and on the various stages of Biblical Hebrew (Archaic, Standard, Core Standard and Core Late). Biblical texts can be dated by looking at “the relative number of non-Semitic loans and the phonological and morphological features of foreign terminology” (p. 265), although these are only guides. As for parts of speech, not unexpectedly most loanwords are nouns (over 95 per cent) as clearly shown by a table (p. 267). The section on loanwords and their domain of use concerns the distribution by semantic category and then considers these categories in respect of donor languages. The author concludes that “the vast majority of foreign words in the Hebrew Bible are cultural borrowings” and therefore that they were “borrowed out of necessity” (p. 270).

Chapter 5 is a linguistic analysis of all the loanwords identified, in respect of their phonology, orthography and morphology. It examines “phonological issues, including phonological correspondences, assimilation and dissimilation, and the resolution of consonant clusters in both initial and final position” (p. 273). It also analyses how the vowels of loanwords were represented and then gives a summary of how speakers of Hebrew and Aramaic dealt with morphological aspects of non-Semitic terminology. This is a very technical chapter that will certainly repay close study. In the following chapter, the evidence for dialect of origin and date of borrowing from Egyptian, Greek, Hittite and Luwian, Hurrian, Old Indic and Old Iranian is considered. Chapter 7 is on non-Semitic loanwords as indicative of foreign contacts in ancient Palestine.

The epilogue is an appendix listing and evaluating proposals for 51 words incorrectly identified by other scholars as non-Semitic loans (pp. 321–358). These are all listed, with their meanings (pp. xxxiv–xxxv). The discussion in this chapter is categorised into two types: (a) the hypotheses in some recently compiled lists,³ and (b) alleged non-Semitic loanwords significant for dating biblical texts, based on the chapter on loanwords in a recent book on that topic.⁴

Full indexes are provided of modern authors, texts in Scripture, ancient sources and of the words in all the languages involved. These include Afroasiatic (Berber, Chadic, Egyptian, Semitic in many forms), Chinese, Dravidian, Elamite, Etruscan, Georgian, Hattic, Hurro-Urartian, Indo-European (in a whole variety of types), Linear A, Malay, Nahuatl, Old Nubian, Philistine, Sumerian and finally, Uralic, truly a long list. There are a few insignificant typographical errors: p. xxx, “Shipwreched”; p. 102, “meaing”; p. 404, “Pharonic”; pp. xxi, xxix, 409, “Joaqín” (for “Joaquín”); p. 411, “Babylonian”; p. 408, *lehmwörter*, and in the index of Hittite words, for *anda* cf. p. 346 (not p. 18).⁵ The reference works consulted are listed (pp. xix–xxiii), but, unfortunately, the relatively recent etymological dictionary of Hittite⁶ was not included. The dictionary of Jibbāli is mentioned,⁷ but not its companion volumes on Harsūsi or Mehri,⁸ and the most comprehensive grammar of Ugaritic,⁹ which discusses quite a few loanwords, was not consulted.

The bibliography fills over 75 pages and, of course, it had to be selective.¹⁰ Additional items on some of the words discussed can be suggested here, including a few articles published too late to have been considered. There have been two recent studies on Heb. *ʾazob*, “origanum” (p. 46), one of which concludes: “a reasonable explanation would be that the term was introduced into Classical Greek through the Greek versions of the Old

³ By Ellenbogen 1962; by Rabin in several studies published between 1963 and 1994, and by Rosenthal 2006, pp. 62–63.

⁴ In Young, Rezetko and Ehrensverd 2008, vol. 1, pp. 280–311.

⁵ P. xxix, note that Ingo Kottsieper was not one of the authors of *Die keilalphabetischen Texte aus Ugarit* (they are M. Dietrich, O. Loretz, and J. Sanmartín) and the correct date is 2013, not 2013–2014.

⁶ Kloekhorst 2008.

⁷ Johnstone 1981.

⁸ Johnstone 1977 and 1987. Other works that could have been consulted are Leslau 1963, as well as Orel and Stolbova 1995, in spite of its shortcomings.

⁹ Tropper 2012.

¹⁰ There is no reference to Hays 2012.

Testament in a quite late period.”¹¹ There are additional studies on Heb. *pilegeš*, “concubine” (pp. 176–177)¹² and on Heb. *yayin*, “wine” (pp. 112–113),¹³ two articles on Heb. *šōšan*, *šūšan*, “water lily, Egyptian lotus” (pp. 206–207)¹⁴ and a very recent article is on Heb. *taḥaš*, “a type of Egyptian leather” (pp. 218–219).¹⁵ Some of the entries might have included additional information. For Heb. *nēkāsim*, Aram. *niksin*, “wealth, property” (pp. 152–153) there could have been a reference to Ug. *nkšy*, “accounts” and another possible cognate for Heb. *qardom*, “axe” (pp. 197–198) may be Mari Akk. *qadūmum*, which denotes an adze of some kind.¹⁶ Heb. *pelek*, “spindle”, which also occurs in Ugaritic as *plk*,¹⁷ is considered to be a non-Semitic word (pp. 177–178) and one wonders whether there is any connection with Greek *πλέζω*, “to braid, knit, wind, twine”. The discussion of Heb. *šālīš*, “a high-ranking official” (pp. 355–356) makes no reference to Ugaritic *tl̥t*, possibly with the same or similar meaning.¹⁸

It is not always easy to determine where the author has made his own new proposals. Examples of such suggestions seem to be an Old Iranian origin for Aram. *’aḏargāzar*, “a financial official” (p. 42), an Egyptian origin for Heb. *bad*, “pole” (pp. 71–72), a Scythian origin (via Akkadian) for Heb. *karb’lāh*, “a type of pointed cap” (p. 130), a Hurrian derivation for Heb. *kīyyôr*, “a metal vessel” (pp. 120–121), a Luwian origin for Heb. *lappīd*, “torch” (p. 141) and the meaning of both “lead” and “tin” for Heb. *’anāk* (pp. 56–57).¹⁹ On the other hand, several of the author’s conclusions on Heb. *kôbaʿ*, *qôbaʿ*, “helmet” (pp. 117–118), on Heb. *seren*, “a Philistine official” (pp. 166–167) and on Heb. *tîrôš*, “grape, fresh wine” (pp. 219–220) have been independently confirmed in a recent article.²⁰ Very occasionally, there is no mention that a word has already been registered as a Semitic loan in Egyptian, for example, Heb. *sēpel*, “a metal bowl” (p. 164).²¹ The author’s sense of humour in the form of puns appears now and then, softening his evaluation of other opinions (for example, p. 179, n. 500).

Ultimately, this study of loanwords in the Hebrew Bible, which also includes Aramaic, is impressive for its wide-ranging scope, its judicious and well-informed but always courteous critique of previous proposals, and the soundness of its scholarship. It will be a significant and very useful reference work for many years to come, not only for those working in Hebrew and Aramaic but also for students of the numerous ancient languages that have been considered in this volume.

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¹¹ Mazzini 2020, p. 9 n. 32; the other study is Hawley 2004.

¹² Budin 2003; Rosół 2013b.

¹³ Brogyanyi and Lipp 2016.

¹⁴ Štrba 2004; Suderman 2005.

¹⁵ Mastjak 2017.

¹⁶ On Hurrian *kadinni*-, “sword” (p. 119) see now Vita and Watson 2014.

¹⁷ Sauvage and Hawley 2013, which is significant as it is a rare case of an object being inscribed with the term for that item.

¹⁸ Nor are there references to Na’aman 1988 or to Schley 1990.

¹⁹ Cf. Noonan 2013.

²⁰ Oreshko 2018, pp. 105–106, 111–112 and 110–111 respectively; on Heb. *tîrôš* see also Xella 2003.

²¹ See Hoch 1994, p. 364; see also Tropper and Vita 2010.

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- [1] Hélène Sader. *The History and Archaeology of Phoenicia*. Atlanta, GA: SBL Press, 2019. Pp. 383. \$50. ISBN 9781628372557 (paperback).
 [2] Brian R. Doak and Carolina López-Ruiz. *The Oxford Handbook of the Phoenician and Punic Mediterranean*. Oxford: Oxford University Press, 2019. Pp. 768, 84 figures and maps. £110. ISBN 9780190499341.

Part 1

Hélène Sader's *The History and Archaeology of Phoenicia* presents evidence for the people living in four kingdoms of the Levantine coast — Arwad, Byblos, Sidon and Tyre — that decades of research have called 'Phoenician'. Her basic aim is to assess whether this 'generic' term is justified. Hélène Sader sets her sights on the Greeks and why they referred to these communities as 'Phoenician':

did all the inhabitants of the four Phoenician-speaking kingdoms share one common way of life dictated by similar environments and/or by their proximity to one another, as suggested by the Greek designation, or can one detect a clear distinction in lifeways in various parts of the Phoenician coast? (p. xiii)

Hence her focus falls on these kingdoms, which have most contributed to our understanding of the period through an accumulation of archaeological investigations, and on other Iron Age locations in the region (p. xii). The Phoenician settlements of the greater Mediterranean are left out of the discussion in order to keep the analysis firmly on the homeland states.

In the wake of Josephine Quinn's deconstructing account of the Phoenicians in her ground-breaking work of 2017, the reader will find a no-nonsense and practical justification for Sader's continued use of 'Phoenicia' and 'Phoenicians'; it is a centuries-old terminology. There is a need for such terms when alternatives are wanting and they are used with the proviso that we must recognise political unity is not proven any more than is a common Phoenician identity (p. xiv). As Sader points out, it is a field suffering from modern nationalistic interpretations, entrenched erroneous views and stereotypes (p. xv). It will take time for our understanding of these fundamentals to be established in the literature, so that we can again feel comfortable using the terms. This 'trepidation' is what I predicted in my review of Quinn's book.¹

The introduction provides a thorough assessment of the geographic, environmental and maritime factors in which the Phoenician societies emerged in harbour towns along the Levantine coast from Arados to Jaffa, which can be further divided into northern and southern sectors (p. 5). Phoenicians occupying the, at times, quite narrow coastal margin, were 'home-grown', emerging from local Late Bronze Age communities as opposed to having origins in foreign populations infiltrating the region (p. 4). They were not restricted by the geographic limitations of their territories, as the Phoenicians did forge links to the hinterland beyond the mountains that defined the eastern limits of their territories, along routes through the Homs Gap and Ġizzin mountain passes (p. 12). Sader covers such aspects as the sweep of contemporary texts, paths of communication through the region and natural resources, firmly setting the scene for her detailed study of the Iron Age settlements of Phoenicia. The discussion of the chronology distils the available Iron Age sequences so far devised for the principal sites broadly falling within the two sectors; it is certainly detailed enough to be a valuable overview, but not mired down with the minutiae that can come with such discussions.

The value of her study is best summed up by the author herself:

In short, we owe most historical facts relating to the Phoenicians to foreign sources. This is why the archaeological record is of utmost importance not only to fill in the gaps left by scanty written sources but also to get solid facts that are not distorted by political or economic foreign interests and that, if retrieved and interpreted properly, would give us an unbiased view of the historical reality. (p. 28)

The evidence for the Phoenician period is drawn together over two chapters, one dealing with Iron Age I and another with Iron Ages II and III. For the Iron Age I (Chapter 2), Sader has given us a concise account

¹ Sagona 2019.

of the few pertinent ancient texts, stratigraphy and chronology for relevant sites in the northern and southern regions. She also points to issues of cultural continuity from the Late Bronze to later periods (e.g. Dor, p. 44). Known economic activities for various locations such as industrial level of pottery production in Sarepta (p. 39) and bead making in Tyre (p. 41) as well as foreign influences (Aegean, Cypriot) on their manufactures also contribute to the success of the Phoenician states. Her methodology of taking the reader step-by-step through the data available is also applied to domestic, public and defensive architecture and burial practices.

Chapter 3 presents relevant accounts extracted from the ancient texts, which chart the known history, growing complexity, political organisation, harbour facilities, defences and geographic extent from islands to coastal lands of the Phoenician kingdoms during Iron Age II and III.

Chapter 4 is devoted to detecting,

identifiers or specific features that can justify considering the cultures of the Levantine coast as homogeneous and specific to its inhabitants, or whether we can detect substantial differences singling out individual cultures. (p. 147)

Sader delves into the areas one would expect in trying to determine common denominators or distinct trajectories (Chapter 4): language, writing, material culture, fortifications, domestic and religious architecture, manufactures (metal bowls, ivory work and decorated *Tridacna* shells and ostrich eggs). Of these aspects and where enough evidence permits, common ground is found in language and writing although they did not create alphabetic script (pp. 150–154). Ashlar blocks and header and stretcher building techniques are a characteristic of the region (p. 160). Of manufactures long argued to be Phoenician products, notably highly decorated metal bowls, distinctive metal jugs and ivory work, next to no examples have been found in the homeland. *Tridacna* shells are now thought to be a Syro-Palestinian product (pp. 178–179) and decorated ostrich shells have also been ruled out of the discussion as examples of Phoenician artistic expression. Notwithstanding these findings, Phoenician craftsmen may have been lured or forcibly removed to more dominant regions of the Middle East to manufacture such items.

Of religious belief Sader states, “one can safely argue for one Phoenician religion: one common set of beliefs, one common set of divine figures, and common cultic traditions” (p. 188). In Chapter 5, the reader is led, site-by-site, through the evidence for religious architecture. Temple sites are well represented in the region and the author illustrates many of them in her overview. While architecture does not conform to a standard plan, internal fixtures point to shared cultic practices (pp. 204, 210) with some regional variation in the offerings left in the temples in northern and southern towns. Aspects such as foreign influences on Phoenician religion are discussed; Egypt and later Greece provided inspiration concerning deities and iconography. The discussion concerning the absence of Assyrian influence in Phoenician religious practice is fascinating, one which demonstrated Phoenician choice driven by resistance to oppression and enduring allegiance to Egypt (pp. 213–216).

Concerning burial practices for the region, Sader lays bare the problems plaguing the field: the absence of ancient written accounts concerning their beliefs, patchy occurrence of finds in the archaeological record particularly in the northern zone, some plundering of tombs and cases of lost archaeological documentation. The author gathers together what is known, categorising burial sites into earthen pits, cists graves, rock-cut chambers, with or without access shafts, and constructed ashlar tombs (pp. 218 ff.). Evolving mortuary practice was influenced by Egyptian and Greek practices (coffin iconography, mummification) and the introduction of cremation for reasons that have yet to be determined. A crematorium in Akhziv, indications of distinctions made between adult and child mortuary practice and dog burials are part of this interesting discussion concerning this aspect of Phoenician culture.

Phoenician economy thrived on the exploitation of trade routes by land and sea. Phoenician trading partners touched most of the prominent nations of the ancient world. Timber, resins, textiles, foodstuffs (including wine, olive oil, spices), luxury items of their own manufacture or products of other nations (notably Egypt and Assyria), raw and semi-processed materials (timber, metal, pigments, chemicals, pp. 249 ff.) and so on are discussed in Chapter 6. Their economic enterprises form the nub of who we have come to

identify as the Phoenicians. At the local level, there is good evidence from a number of sites for Phoenician agricultural practices and for their varied diet.

Hélène Sader is a leader in the field and her expertise is apparent in every page. Her clear writing style, comprehensive analysis and concise summaries that end each section make this volume very approachable; it is a valuable guide through the complexities of finding and defining Phoenicians in their homeland. *The History and Archaeology of Phoenicia* is, quite literally, packed with information about the Phoenician homeland sites; certainly this book is a good starting point for anyone new to the field and a welcome addition on the shelves of established scholars. Like two sides of a balance, Josephine Quinn's book questioned long-held notions about who the Phoenicians were and now, with Helen Sader's volume, these remarkable Levantine people have once more taken shape — even if they were, in reality, from independent states acting in their own interests.

Part 2

Appearing in the same year was the volume *The Oxford Handbook of the Phoenician and Punic Mediterranean* which, in its advertising campaign, claims to be the “first Handbook of Phoenician and Punic world in over two decades and the first Handbook of Phoenician and Punic world of any kind in English.” This detailed collection of essays distils the extensive body of research, some embracing the theoretical developments and others summarising archaeological discoveries over recent decades.

The introductory essay clearly sets out the justification for such a volume:

This is a particularly fragmented and scattered field; while there is growing interest in Phoenicians, the latest advances are mostly published in specialized journals and conference volumes in a variety of languages. (Doak and López-Ruiz, p. 4)

As noted for Sader (above) and almost everything written concerning the Phoenician and Punic period post Quinn's book, the editors also recognise the dilemma of terminology forewarning the reader that a range of viewpoints are conveyed in the chapters: “all these authors have a fairly good idea of who the Phoenicians were and what evidence to show for their contributions” (p. 4; see also pp. 9–10; 29–34). Indeed, the introductory essays are an exercise in defining ‘Phoenicianness’ (Vella, p. 31). As the reader will find in this handbook, it was Sabatino Moscati who was instrumental in setting the agenda for the field for decades to come through an exhibition, through extensive fieldwork and through associated research. The discussion, ‘Birth and Prospects of a Discipline,’ charts the development of the field in the 1960s and 1970s. These are not the last words in the volume concerning what comprised the Phoenician homeland, who the Phoenicians were or this problematic notion of ‘Phoenicianness’ (e.g. Killebrew pp. 41–42; Jigoulov, p. 90). Hence, most research roads along this line of enquiry and indeed in this handbook, inevitably lead back to addressing Quinn's challenging questioning of the field. In many respects, if Moscati set the agenda for the field for decades past, Josephine Quinn's far-reaching enquiry will certainly make its mark on the field into the 2020s.

This volume is very much a handbook and the opening pages (‘Research Tools’) provide a core of published resources from which to launch investigations into the Phoenician-Punic field (Greek, Phoenician, cuneiform and biblical texts, personal names, archaeological investigations and cultural research) and the chapters in the volume delve more deeply into these sources, for example, Jigoulov concerning Phoenician inscriptions of the Achaemenid period (pp. 91 ff.). After the introductory essays, the volume is divided into: I - ‘Histories’ (concerning the east and the west); II - ‘Areas of Culture’ (language and literature, religion, material culture); III - ‘Regional Studies and Interactions’ (spanning from the Levant, sites of the Mediterranean rim to those in the Atlantic); IV — ‘Receptions’ (referring to Phoenicians as they appear in the literature and philosophies of other societies).

‘The East’ (§1.1a) presents Phoenicia and its people in their home context, their origins in the Late Bronze Age during the Canaanite period, the scope of its territory and interactions with and influences from neighbouring polities and contemporary cultures throughout the centuries, namely Assyrian, Babylonian, Achaemenid, Hellenistic and Roman spheres. Much of the historic narrative covers ground familiar to those in the field, but it certainly also encapsulates new data accumulated in recent decades. Indeed, the emergence

of the Phoenician merchant confederation (adapting Killebrew's comments, p. 42) — perhaps this is how we could refer to the Phoenicians post-Quinn — took shape in the push and pull factors of market forces, economic decline and recovery generated by the rise and fall of empires and other east Mediterranean coastal regions.

Throughout the volume, the reader is carried through well-worn themes and topics that have been the subject of research for decades. Concise accounts concern sites in the Levantine homeland: Tell Kazel, Sidon, Sarepta, Tyre, Tel Akko (Killebrew; see also Lehmann, pp. 465 ff.). A chapter by Sader, too, encapsulates the archaeological work carried out in the homeland region and the hallmarks of Phoenician culture seen in domestic, religious and funerary architecture (Chapter 10). Teased from inscriptions and texts are branches of the known royal lineage, of their histories and Phoenician dealings with neighbours, powerful or otherwise, and of their terrestrial and maritime economic ventures as merchant middlemen in the regions in which they operated (Bunnens). Huelva (Spain) and Sant'Imbenia (Ighero, Sardinia) provide some of the earliest evidence (ninth-eighth centuries BC) for a Phoenician presence, in both cases driven by the quest to find metal resources already heavily exploited by indigenous populations (Aubet Semmler). Following closely on the exploratory ventures, colonies were founded largely sponsored by Tyre. Spain and Sardinia figure prominently as targets for the early phases of colonisation and Aubet Semmler charts the recent archaeological evidence over three stages in the process launched by a pre-colonial phase leading concertedly to colonisation.

The essays focused on the western settlements begin with Carthage, replete with dramatic foundation legends and the long-term impact of the Himera battle (discussed by Dridi). The years leading up to the Punic wars, when the city flourished, saw it benefit from the development of the hinterland and expansion of its maritime influence in the Mediterranean (in Hoyos' chapter). The impact of eventual conflict with Rome took place between 264 and 146 BC (see de Lisle) and the years following the wars are outlined (see Hobson). The authors remind us that the history of Carthage, like other Phoenicia-Punic locations, was written by its economic and political rivals. In this volume, the reader will find balanced and well-considered discussions, which seek to present a realistic account of Carthaginian identity reflecting a degree of multiculturalism, its governance, social organisation, the values held by its people and regional interactions, both peaceful and militant.

Chapters in Section 2 drill down into the key areas: language, inscriptions, alphabet, literature, religion, funerary ritual, *tophets* (childrens' burial grounds) and child sacrifice, coinage, trade, pottery, artistic expression through iconography and orientalisising influences, metallurgy, seafaring and wrecks, animal husbandry and agricultural economy. Some topics have long been the purview of specialists within the Phoenician-Punic field of research. It is simply not possible to do justice to the wealth of information locked into each area study. The deep knowledge and authoritative account of language by Maria Giulia Amadasi Guzzo, for instance, is striking. Coinage, too, an integral part of commerce from the mid-fifth century BC has been the subject of close research concerning such aspects as production centres, weight, metal sources and iconography. They reflect aspects of Phoenician identity, governance and cultural heritage (Betlyon; also discussed in Jigoulov, p. 93; Aliquot, pp. 115, 117). Another topic that is vexed and still unresolved is the classical references to child sacrifice reputedly practised by Phoenicians (McCarty). I would only add that in Malta, infant and child remains do not appear in the tombs of adults, which, aside from the direct evidence for at least one *tophet* on the island, strongly suggests that, at death, these young individuals were subject to different rites, not those governing adult remains.² This is in tandem with the McCarty's observation concerning the separation of child and adult burials in Cyprus (p. 320).

Our knowledge about the Phoenicians and their western Punic descendants is greatly enhanced through looking beyond the Levantine homeland to locations targeted by the Phoenicians for their commercial dealings and eventual settlement. Many islands from east to west and coastal regions of the Mediterranean rim were infiltrated through their maritime ventures. Any review of such a handbook cannot do justice to the complexity and scope of growing evidence for the Phoenician-Punic period and at best, I can only offer some of the trends and themes emerging from the area studies in this volume. In Cyprus, Phoenician influences form an uneven patchwork across the island and their presence endures despite political changes of the fourth century BC

² Sagona 2015, pp. 204–206.

(Fourrier, pp. 488–489). In the Aegean generally, the effects of their trading ventures, whether sporadic or continuous, as well as resident Phoenician communities not described as colonies, is manifest in objects exotic to the region's coastal and island locations (Stampolidis, p. 495). Italy, also devoid of distinct Phoenician settlements, has evidence of contact in the elite grave goods of the indigenous inhabitants and even these have questionable origins, perhaps traded out of colonies in the central Mediterranean rather than from the Phoenician homeland (Hayne, p. 507).

A degree of 'fluidity and connectedness' is used to describe the Phoenician and Greek influences in Pithekoussai (Ischia Island, near Naples, p. 510). Metal-rich Sardinia felt the effects of Phoenician traders early in the process of Levantine exploration of the Mediterranean and permanent settlements established in the eighth century BC were not isolated from the indigenous Nuragic communities on the island (Roppa, pp. 522 ff.). This trend to identify the local people in the archaeological record and to chart their involvement with the newcomers to their shores is one of the most fascinating and worthwhile lines of enquiry, which has gained momentum in recent years. Sicily, like Malta, was seriously impacted by later Roman developments and although the island of Motya, off the west coast, has a rich archaeological record for the period, on the available evidence, a Phoenician presence has only been pushed back to the end of the eighth century BC (p. 541). If the ancient accounts can be trusted, however, it is possible that the Phoenicians were present in Sicily before the turn of second and first millennium BC (de Vincenze).

Malta is not neglected in this volume which is, unfortunately, the case for many studies concerning the Phoenician-Punic period. There can be no doubt that this archipelago played a significant part in the Phoenician infiltration the Mediterranean with their cultural, mercantile and religious traits enduring in an unbroken line through their Punic descendants into the Roman period of influence. Anastasi and Vella have encapsulated many of the significant sites of the period in the islands.

Ibiza played a primary role as a commercial hub linking to the regions of northern Spain and the southern coast of France. Its local inhabitants fade into the archaeological record of the island, which was quickly dominated by Phoenician settlements and interests and, in time, prosperous Punic communities (Costa, pp. 571 ff.). The rich mineral resources of Spain were a lure tempting traders from the Aegean and Levantine region long before Phoenician settlement and of the latter, the Classical sources suggest Gadir (Cádiz) was one of the first to be colonised in the tenth and ninth centuries BC. Encapsulated in López Castro's chapter is the great scope of Spain's rich archaeological record, and the numerous important investigations carried out there have greatly contributed to our understanding of Phoenicians in the west. Here, too, the role of local Iberian communities has been recognised.

Portugal was also settled at an early date and its mineral resources, including tin, were a lure for the Iron Age traders (Arruda).

In a chapter concerning Gadir-Tyre, Álvarez Martí-Aguilar traces how belief in the Phoenician deity Melqart of Tyre shaped the establishment of a settlement in Gadir as preserved in foundation myths recorded in ancient texts. This underpinned the strong bond between these two distant locations. The 'Tyrian model', it is argued, formed the basis for the process of colonisation in which oracular rituals and signs, sacrifices, celebrations of the dying and rising god and the establishment of a temple play a part. The role of Melqart is also considered for Carthage.

Mederos Martín also comments on the temple of Melqart in the settlement at Lixus, which figures among the early settlements in the west. In his chapter on North Africa, the establishment of settlements over the course of two centuries along the African coastal regions is outlined. The complexities of where the colonising influences came from, whether from the Phoenician homeland or from one of its colonies on the Iberian Peninsula or from Carthage are as complex as the motivations for establishing such settlements.

The ancient accounts of Phoenician exploration pushed the boundaries of their known world. Those sponsored by King Hiram of Tyre led to the settlement of the western Mediterranean, but some regions were not impacted to any great or lasting degree probably due to resistance or hostilities by local populations. No less ambitious was the Phoenician circumnavigation of Africa preserved in the account by Herodotus, or Hanno's colonising expedition along the west African coastline, or Himilkon's travels north, perhaps touching Ireland and Magon's desert crossings (see Roller).

How the Phoenicians have been viewed through time is the focus of the final six chapters; in the biblical sources (see Doak), in the writings of the Greek and Roman authors (chapters by Quinn and by Kaldellis),

in recent literature from a 'western' perspective including the shadow of depravity that is sometimes cast over Carthage in particular (Garnand) and claims of special connections to a Phoenician heritage driven by nationalistic, political and economic motivations in the recent era (Doumet-Serhal; Lafrenz Samuels and van Dommelen).

The essays demonstrate the remarkable versatility of Phoenicians in their economic and political activities. They adapted to fluctuating fortunes of neighbouring kingdoms and empires impacting their territories. Phoenician openness to 'cultural transfer' and 'cultural permeability' shaped the nature of their Hellenisation in the fifth and fourth centuries. As Bonnet notes for Tyre: "What happened there was something more fluid, and more creative than the simple adoption of Greek culture" (p. 103). Their religion and deities endured, even though they were eventually assimilated into Greek, then Roman spheres of influence. Their temples reflect the dominating architectural trends of the time, financed by the wealthy elite within their communities (Aliquot, pp. 119–121).

In many respects, this handbook presents the field of Phoenician-Punic research in the process of fine-tuning its lines of enquiry where long-held definitions are questioned, past assumptions are reassessed and current theoretical views are applied. New data, won from archaeological investigations, are expanding what we know of the Phoenicians and their homeland as well as their network of settlements in the greater Mediterranean region. The essays are more nuanced and the edges of 'Phoenicianness' blur according to the chronological time under discussion, the geographic location where their cultural footprint can be detected and the communities with whom they came into contact. As Lehmann states: "the elusive character of 'Phoenicia' reflects in some appropriate way the complex and flexible ancient reality" (p. 466). The sheer scale of people exploring, trading and settling the greater Mediterranean make this one of the most challenging, dynamic and endlessly fascinating fields of research.

Unfortunately, the review copy I received was electronic and the index appears as a straight list of terms with no insets and hence, no distinctions for the sub-categories, obscuring the alphabetic order of the index. Another formatting flaw concerns maps; they are so low in resolution that the sites listed on them are so small and blurred, they cannot be read. Illustrations are few in number, but are generally clearer. These flaws are something to watch for by those opting for the electronic format. Nonetheless, the wealth of current research in this handbook will be welcomed by established scholars and those new to the field and it will be an asset in any academic library.

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Andrew R. Davis. *Reconstructing the Temple: The Royal Rhetoric of Temple Renovation in the Ancient Near East and Israel*. New York: Oxford University Press, 2019. Pp. 232. US\$125. ISBN 9780190868963.

It has long been recognised that an important responsibility of kings in the ancient Near East was attention to the temples of the gods. Kings had a special relationship with the gods which was manifested in their

divine mandate to build and restore temples, and such activities consistently feature in royal ideology. Davis begins his study by making a distinction between kings founding new temples and kings renovating existing temples. For Davis, accounts of these two activities serve the interests of royal ideology in different ways. Narrative accounts of the renovation of existing temples, the focus of the present study, afford kings (or their scribes, at least) the opportunity to engage the past in ways that suit present concerns, in the interests of promoting royal legitimacy, piety and propriety. With former kings selectively acknowledged, ignored or disparaged, and the history of temple renovations rewritten, accounts of temple renovation as historiography serve as propaganda on behalf of the current king. Davis contends that there was a common rhetoric evidenced in these narratives of temple renovation across the ancient Near East in the first millennium BCE and he seeks to elucidate its features through a comparative study of examples drawn from the Neo-Assyrian Empire, the Achaemenid Persian Empire, and ancient Israel and Judah.

Davis is alert to the question of how first millennium scribes in various locations (represented by texts from Assyria, Babylonia, Persis, Egypt, Syria and Judah, written in Akkadian, Old Persian, Egyptian, Aramaic and Hebrew) were familiar with a common royal rhetoric of temple renovation. He contends that imperial propaganda was disseminated, in the Neo-Assyrian period, through “the prevalence of duplicate building inscriptions” found in locations beyond the original site of the building, the proclamation of royal inscriptions and letters, and speeches of imperial officials (such as the *rab šāqē* in 2 Kings 18–19) (pp. 12–13). Following David Carr, scribal training demanded the memorisation of “a repertoire of textual templates on which [scribes] drew in their composition of new texts” (p. 19), among which, one might assume, this royal rhetoric was included. For the Achaemenid Persian Empire, Davis later notes (p. 148) Darius’s claim that his Bisitun Inscription was sent throughout his kingdom, with an Akkadian exemplar known from Babylon and fragments of an Aramaic exemplar known from Egypt. Davis thus offers a defence for his comparative approach, although our knowledge of scribal education in the various regions of the ancient Near East remains uneven, as does our knowledge of the modes of transmission of learning between regions.

Having set out the rationale for the study and addressed methodological matters in the introductory chapter, the succeeding three chapters present the comparative study. Chapter 2 examines two examples of temple renovation undertaken by the Neo-Assyrian king Esarhaddon: Ešarra, the main temple of Aššur, and Esagil, Marduk’s temple in Babylon. Through these restorations Esarhaddon contrasts his reign with that of his father Sennacherib, who is conspicuously missing from the account of the history of Ešarra’s restoration, and whose destruction of Esagil, attributed to divine anger in Esarhaddon’s text but known to be Sennacherib’s responsibility, demanded restitution. For Davis, these renovations undertaken by Esarhaddon “played a key role in his self-depiction vis-à-vis his father ... to establish discontinuity between his reign and his father’s and to attach his reign to a more illustrious past” (p. 28). Davis then compares the account of Josiah’s renovation of the Jerusalem temple in 2 Kings 22–23 with the rhetorical strategy of the Esarhaddon texts, arguing that this account “can be read as a critique of his predecessors”: Manasseh, whose religious policies Josiah reverses, as well as Jehoash and Ahaz, whose temple renovations were surpassed by him (p. 58). Josiah also corrects Solomon’s earlier syncretistic worship and looks back to David as his royal precursor, although Davis has to contend with the fact that David himself was not a temple builder or restorer. Viewing the ‘book of the law’ discovered in the temple by Josiah’s workmen as serving the same role as an uncovered foundation inscription in the Mesopotamian texts is an enticing idea, but I am unsure it can connect David with Josiah as Davis suggests, especially when all the other cited comparisons depend on the common undertaking of temple renovation.

Chapter 3 takes up early Achaemenid Persian examples from the reigns of Cyrus, Cambyses and Darius I, examining the Cyrus Cylinder, the Udjahorresnet biography, sections of the Bisitun Inscription, and Ezra 5:7b–6:12. Here the focus shifts more towards building projects in subjugated territories and, unlike Esarhaddon’s inscriptions which were written by imperial scribes, the Cyrus Cylinder, the Udjahorresnet biography, and Ezra 5:7b–6:12 were written by local scribes sympathetic to Persian rule for local apologetic purposes. Davis does not really address the purpose(s) of these pro-Persian local texts or discuss the fact that Udjahorresnet and Ezra are not royal inscriptions (which all the other cited examples are, at least in form). He offers insightful, considered readings of these texts, with attention to their shared royal rhetoric of temple renovation which he sets in the context of other building activities in these kings’ reigns. The most pressing motifs are the desire

to distinguish the current king's activities from those of the previous ruler (Cyrus compared with Nabonidus in the Cyrus Cylinder; Darius compared with Gaumata in Bisitun DB §14; Cambyes compared with himself, since he corrected his own error in allowing foreign soldiers to reside in the temple of Neith, in the Udjahorresnet biography; Darius compared with Cyrus in Ezra). I am still not convinced that the Ezra passage describing the rebuilding of the Jerusalem temple is comparable to the other examples cited since Persian rulers were not active benefactors of this temple. They were not responsible for its rebuilding and did not actually offer much by way of financial support (cf. Davis's acknowledgement of my position on pp. 138–139 and n. 134). Additionally, they viewed Judah and its temple as marginal to imperial concerns in comparison to Babylonia and Egypt.¹

Chapter 4 takes a different angle on temple renovation rhetoric. Davis understands the narrative of Jeroboam I's royal building projects in 1 Kings 12:25–33 to include the restoration of cultic sites at Dan and Bethel (although the term 'temple', Heb. *bêt* or other terminology, is not used), reflecting the rhetoric of temple restoration. He then argues on the basis of the archaeology of Dan and Bethel, that the activities outlined in 1 Kings 12:25–33 should be attributed to Joash and Jeroboam II in the eighth century rather than Jeroboam I in the tenth century. Why attribute the work to Jeroboam I? Because Joash and Jeroboam II, in accordance with the royal rhetoric of temple restoration, sought an illustrious predecessor to which their own reigns' achievements could be related and favourably compared, and so Jeroboam I is presented as the vigorous establisher of the northern kingdom in whose stead they stood. Even Jeroboam II's name deliberately recalls the kingdom's founder, Jeroboam I, much like the Neo-Assyrian Sargon recalls the glorious Sargon of Akkad from a distant age. As a comparison to Joash and Jeroboam II's rhetorical turn, Davis considers the Panamuwa and Bar-Rakib inscriptions from Sam'al in the eighth century. Bar-Rakib writes an inscription for his immediate predecessor and father, Panamuwa. It is concerned with building a palace, not a temple, as well as with his father's standing among local rulers and before the Assyrian king, but it serves Davis's purpose in that Bar-Rakib establishes his predecessor's greatness both as a standard for his own kingship and to show how his own palace renovation project "establishes his legitimacy as Panamuwa's heir and can further claim to have surpassed him, even if in other areas he fell short of his father's example" (p. 191).

The final chapter is a short excursion into the Hellenistic and Roman periods, briefly commenting on the rededication of the Jerusalem temple in 2 Maccabees and on Josephus's account of Herod's rebuilding of the temple, the latter displaying clearer signs of the characteristic rhetoric through portraying Herod's "renovation as the correction of recent problems and the restoration of a more glorious tradition" (p. 201). As a final observation he suggests that Jesus's cleansing of the temple followed by the prediction that the temple would be destroyed and then rebuilt "in three days" can also be construed according to temple restoration rhetoric.

Davis's study is thoughtful, well informed, and carefully argued. His nuanced presentation is characterised by attention to historical context, a close, critical reading of primary texts, and detailed engagement with all the relevant scholarship. It is an important contribution to the study of the rhetoric of temple renovation and its role in the ideology of ancient Near Eastern kingship in the first millennium BCE.

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¹ See, Bedford 2001, pp. 140–148; arguably the Samaritan temple on Mt Gerizim offers a more apt parallel to the Jerusalem temple than any temple in Babylonia or Egypt.

Philip Zhakevich. *Scribal Tools in Ancient Israel: A Study of Biblical Hebrew Terms for Writing Materials and Implements*. University Park, PA: Eisenbrauns, 2020. Pp. 228. US\$99.95. ISBN 9781646020621.

The monograph *Scribal Tools in Ancient Israel*, henceforth STAI, is the outworking of Philip Zhakevich's doctoral dissertation (p. xi). It sets out with the twin aims (pp. 1–2) of:

- 1) Providing a lexicographical analysis of Biblical Hebrew terms relating to the technology of writing in ancient Israel, specifically, the period “after the alphabetic writing system had fully taken root”, that is, Iron Age II (p. 1);
- 2) Establishing the primary source of ancient Israel's writing practices, whether Egypt to the southwest, or Assyria to the east.

STAI offers a wealth of information on writing practices in ancient Israel. The monograph is divided into seven chapters including an Introduction and Conclusion. The bulk of the work, comprising Chapters 2–5, addresses the first of the two aims. Chapters 2–4 concern writing surfaces: respectively, papyrus (Chapter 2); stone and plaster (Chapter 3); and other surfaces, including skins and scrolls (Chapter 4). Discussion of writing implements is reserved for Chapter 5.

The monograph's first aim, that of providing a lexicographical analysis of Biblical Hebrew terms, is well achieved: STAI provides an invaluable starting point for anyone interested in the etymology and real-world reference of terms associated with writing in ancient Israel. The monograph's use as a reference work is ably assisted by two indices: a subject index (pp. 207–212), and an index of the Bible passages and ancient texts discussed across the chapters (pp. 195–205). Indeed, at least in the view of the present reviewer, it is the attempt to link the linguistic terms with their likely or possible material referents that comprises the author's major contribution. This approach is central to the monograph's methodology, which combines “comparative Semitics, archaeology, and lexical semantics” (cf. p. 5).¹ The linguistic analyses are sober and reasonable, showing an admirable caution in not wanting to go beyond the data, for example, in reference to writing boards (p. 110). Zhakevich is happy to point out where the semantics of a given Hebrew term are not precisely known, as in the case of *gillāyôn* (pp. 97–98). Insights from the Septuagint are also treated with care and caution (pp. 5–7).

The lexicographic analyses will be especially useful for anyone with an interest in the precise denotation of particular Biblical terms, including (but certainly not limited to): Bible exegetes, who will benefit from the wealth of contextual detail provided for the use of writing terms in individual Bible passages; Bible translators, who will benefit from the extensive in-depth discussion of individual terms of writing technology, providing nuances as well as a description of the limits of knowledge often not available in a dictionary; and lexicographers, who will find a mine of helpful detail. The work will also serve as a vital foundation for future studies of writing in the ancient Near East, as well as those addressing questions of writing and literacy in ancient Israel.

As the author acknowledges (pp. 1–2), the first question receives the bulk of the monograph's attention. Concomitantly less attention is paid to the second question, namely, that of establishing the primary source of ancient Israel's writing practices. Though the issue is addressed in Chapter 6, the chapter comprises a mere eight pages, calling into question whether it is treated sufficiently.

Zhakevich's central claim in the final chapter is that “Israel's most common form of writing — writing with ink on ostraca and papyrus — is Egyptian in nature and was introduced into Canaan by Egypt during the New Kingdom (1549–1069 BCE)” (p. 2). Zhakevich supports the claim with evidence for the considerable dominance of Egypt over Levantine affairs throughout this period (pp. 161–163).

Egypt's contribution is argued to include the alphabetic writing system itself (p. 165), as well as the introduction to the Levant of particular tools and materials commonly used in Egypt, notably, ostraca (pp. 165–166) and papyrus (p. 166). Support for the Egyptian origin of these items comes from the fact that many of the relevant Hebrew terms are Egyptian loanwords, including, *gōme* “papyrus”, *ḏayō* “ink” and *qeset* “palette” (p. 166).

¹ Referencing Koller 2012, cf. also Boyes 2021, p. 26.

Zhakevich acknowledges that not all writing-related terms derive from Egypt, with Mesopotamian influence also playing an important role (pp. 163–165, 167). He refers in particular to the parallel use of cuneiform (pp. 163–164), and the pervasiveness of monumental stelae (p. 164) and writing boards (pp. 164–165). However, for Zhakevich the important point is that the Mesopotamian-influenced scribal practices were adopted for “impressive” (p. 167) writing, namely monumental display, while their Egyptian-influenced counterparts were adopted in more everyday contexts, such as correspondence, legal documentation and literary composition (p. 167). For Zhakevich, the conclusion to draw from this is that “[a]ncient Israel’s writing customs thus ultimately originate with Egyptian writing practices” (p. 170).

Zhakevich’s conclusion seems, at least to the present reviewer, to be unnecessarily simplified. Whilst writing material and tools used for more everyday purposes find their origin in Egypt, it is not the case that all day-to-day interactions with writing would have necessarily been with these ‘everyday’ tools and materials. In particular, monumental inscriptions may well have been read on a daily basis, even if they were not written by the average person. As Zhakevich himself states elsewhere in the monograph (p. 167), “the writing technology of Canaan and Israel reflects the impact of two ancient Near Eastern cultures, those of Mesopotamia and Egypt”. Indeed, the dichotomy of contexts in which these two sets of writing materials and implements were used raises intriguing questions as to the reason for this dichotomy and its implications. For example, what was the socio-cultural significance of the dichotomy?

Notwithstanding this criticism, STAI is a careful and thorough study of terms for writing in the Hebrew Bible, and as such represents a major contribution to research into writing and literacy in the Iron Age Levant. Zhakevich’s work will be an important reference point for scholarship in this area for years to come.

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Alexandra Villing, J. Lesley Fitton, Victoria Donnellan, Andrew Shapland. *Troy: myth and reality*. London: Thames & Hudson in collaboration with the British Museum, 2019. Pp. 312. £40. ISBN 9780500480557.

Troy: Myth and Reality is the catalogue of the exhibition of the same name that was on display at the British Museum from 21 November 2019 to 8 March 2020. Rather than constituting an edited volume, as was the case for the *Ashurbanipal* and *Inspired by the east* exhibition catalogues, *Troy* has only four authors who collaborate on the different sections. Each author brings a different set of knowledge and experience that adds strength to the volume, from Bronze Age Greek pottery to the reception of ancient history in film.

Primarily following four themes, the storyteller, the myth of Troy, the archaeology of Troy and the legacy of Troy, the catalogue follows a similar format to the exhibition itself, discussing how “the story of Troy ... continues to speak to people across cultures and through time” (p. 8). The table of contents lists only the main themes, along with forewords,¹ an introduction, an epilogue and the back matter, and though this may suffice for a browsing reader, it would have been useful to provide the more extensive subdivisions on this page to facilitate targeted reading.

‘Storytellers’ provides a discussion on the authorship of the *Iliad* and the *Odyssey* as well as highlighting the lesser-known stories associated with the Trojan Cycle and the reception of the Trojan War in the works of other Graeco-Roman authors and artists. The discussion surrounding the figure of Homer is rich and historically grounded, highlighting the variety of potential views on the cycle’s authorship from a deified creative genius to an anonymous group of poets. The chapter provides a clear argument for the current scholarly interpretation that the *Iliad* and *Odyssey* were a series of oral histories brought together centuries after the Greek Bronze age, during a time of expansion and rising pan-hellenic identity. The clear division between Homeric and non-Homeric literature is particularly useful considering the gradual conflation of Trojan War related references in the public perception. It is unfortunate that these references are not given more space, sandwiched between Homer and Vergil rather being allowed to shine in their own right. The integration of artistic responses is an interesting one, providing a material pendentive to the prominence of the Trojan War in Graeco-Roman literature and an important introduction to the artworks that illustrate the following sections. However, it feels tacked onto the end of the chapter rather than integrated into the volume’s wider narrative.

The following chapter, ‘The Myth of the Trojan War’, provides an illustrated summary of the myth itself. It goes all the way from Zeus’ desire to breed discord in order to relieve the burden of humanity to Odysseus’ homecoming after twenty years of travel and war. Subchapters are divided between episodes of the Trojan Cycle and more thematic segments that provide historical insights into questions like the attribution of human agency and the development of the dichotomy between Greeks and ‘barbarians’. Additionally, all these sections are explored through examples of how the myths were received in ancient art and culture, primarily in red- and black-figured vessels, but also a variety of other mediums. Maps help to provide some geographical context for the myths and their heroes which is helpful for contextualising the many names used throughout the volume. A family tree or timeline would have also been helpful here but is unfortunately not included. The storytelling in this section is exceptionally rich and is augmented by the inclusion of evocative fragments of the ancient texts in translation. One particular story that perfectly achieves the difficult balance between myth and history is that of two Roman silver cups bearing scenes of Philoctetes (Dansk Nationalmuseet, DNF 9/20). The cup is not only referenced here for its iconographic connection to the Trojan War, but also to its ability to speak to the spread of the myth, through its history of circulation, being manufactured in Rome and interred with a local chieftain in Denmark.

‘Archaeological Troy’ provides a detailed account of Troy’s identification after the abandonment of the ancient city. Despite many early references to the centrality of Heinrich Schliemann (including in the foreword of BM director Hartwig Fischer), in this chapter, the authors set the record straight, highlighting the many investigations across the Troad that preceded and anteceded Schliemann’s destructive involvement in the archaeology of the region. Though exceedingly European-oriented, the chapter manages to highlight the many different ways in which the area was studied, not just through excavation but equally through extensive topography, philology and material studies. The authors highlight the overlap between clandestine digging and 19th-century archaeology, though less critical language is used when it comes to the extraction of the material from the site once excavations are underway. One particularly problematic story describes the work of John Brunton with a construction crew. After finding a mosaic he leaves the site ordering it to be backfilled until his return but instead he finds the central mosaic has already been removed to a local church. As the text describes it he “consoles himself by removing some of the border, which he...subsequently

¹ The foreword from BP linking archaeological surveying to the company’s search for oil and gas is an uncomfortable one, a reminder of the overlap in extractive practices that formed the foundation of national museums as well as oil companies. As more and more museums are questioning their sponsorship by oil companies, the British Museum’s own failure to do so has received increasing criticism, drawing out tensions between the institution and the wider community.

donated to the British Museum” (p. 139), implicating an ethical judgement against the central panel’s removal to a local location but not against the sections being sent off to London. Schliemann’s own mythologisation of his life and discoveries is clearly highlighted throughout the chapter, while still acknowledging the significance of his excavations for promoting the process of archaeology and its ability to illuminate the past. Schliemann’s story then becomes a story of re-casting and re-contextualising the city of Troy, much like the artists and authors named within the other sections of the volume.

The final major chapter, ‘Troy: Enduring Stories’ is the longest and also attempts to cover the most ground. The section is weakened by its attempts to embrace a huge swathe of history examining re-interpretations in all media from late antiquity to modern times. The structure here also suffers as the authors cannot seem to decide between a chronological or thematic approach. The issue here is not the variety of works presented. Indeed, the diversity of period, geography, style and medium covered is refreshing throughout the volume, however, the sheer quantity of works that the authors attempt to cover means that only a shallow analysis is provided for each one. Many of the artworks described engage with a complex series of references that go beyond the original Homeric poems, a more in-depth view of each work would allow the reader the space to develop these connections beyond the cursory glance. The lack of depth is particularly a shame as the authors have selected such stunning and interesting pieces, such as Elisabeth Frink’s series of lithographs featuring scenes from the *Odyssey* (Tate, PO6193, 6195 and 6197). Pieces like these deserve pages of their own rather than a paragraph in a long section about Odysseus as the first modern man. It is clear from the short snippets of text that the authors have a particular talent for connecting these works to deeper historical trends, with a particularly nuanced approach to discussions about colonial attitudes and gender inequality; it would have been great to see this shine through more.

Ultimately, the volume and the exhibition upon which it is based follows a tested formula that has been used in several other major exhibitions on the topic of homeromania. Two significant inspirations are the 2019 Louvre-Lens exhibition *Homère* which focused on the figure of Homer and his impact on the history of art and literature and the 2001 travelling German exhibition *Troia: Traum und Wirklichkeit* which was divided into the dream of Homeric legend and the reality of Korfmann’s archaeological excavations on the site. While the British Museum exhibition was certainly larger than the former and more scenographically advanced than the latter, it encountered many of the same challenges in its attempt to cover a monumental topic from all angles.

A key challenge that *Troy* faced was the overextension of the exhibition message and the resulting disconnect between its various parts. Each of the volume’s themes could have served as its own blockbuster exhibition: by bringing them together the focus became unclear and the strands, though individually expertly elaborated, did not quite weave together to form a cohesive whole. The volume’s themes are not given equal weight, with the first on storytellers feeling more like a prologue than a chapter in its own right and the archaeology section feeling out of place among the primarily art- and literature-oriented approach of its encompassing chapters. In contrast, the large section on enduring stories encompasses a vast catalogue of art, overshadowing all other chapters, yet still somehow leaving the reader with only a perfunctory understanding of the myths’ constant recontextualisation through history. The final epilogue on the Shield of Achilles shows what the volume could have been, highlighting a single theme and using it to explore dialogues between ancient art, historical scholarship and interpretation and modern re-contextualisation.

All in all, the volume succeeds at dissolving the seemingly clear-cut division between myth and reality as its chapters themselves continuously reference the interplay between the stories of the Trojan War and their re-adaptation within various historical contexts. Despite the structural troubles, the authors achieve their mission of exploring “the most compelling ways the story has been told, retold, used and imagined anew” (p. 13) by drawing on a wealth of materials, periods and geographies. A thorough pleasure to read, this ambitious volume is geared towards a broad audience, but even for seasoned academics, it is guaranteed to provide some unfamiliar and inspiring re-imaginings of this well-known tale.

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John North Hopkins, Sarah Kielt Costello and Paul R. Davis. *Object Biographies: Collaborative Approaches to Ancient Mediterranean Art*. Houston/New Haven: The Menil Collection/Yale University Press, 2020. Pp. 240. US\$50. ISBN 9780300250879.

This volume is the result of a collaborative project between a team of researchers and the Menil Collection, a museum in central Houston established by John and Dominique de Menil. The editors define a dual aim for the volume: the publication of an accessible entry point for researchers, museum professionals and visitors into the lives of objects, and the creation of a resource that introduces the “purposes, practices and practicalities” of object biographies (p. 2).

Besides describing the aims for the volume, the introduction presents the Menil Collection, the wider plans set by the Collections Analysis Collaborative (CAC) Project¹ and the history of object biography as a methodology. It sets out the project as a model of inter-institutional partnership and transdisciplinary practice that can be adapted by any institution struggling with the interpretation and presentation of “antiquities with incomplete life stories” (p. 10). The three editors set a critical and self-reflexive tone for the volume, considering themes of authenticity and value as well as the ethics of current museum practices.

The eight chapters that make up part one of the volume provide case studies from the de Menils’ ancient world collection, based on in-depth studies carried out by the scholars and professionals who contributed to the CAC project. Each chapter provides an extensive object description and history, a number of useful comparanda, as well as a series of high-quality images to ensure that even readers who have never set foot in the galleries of the Menil feel familiar with the material being analysed. Beyond these basic components, the contents and focus of the chapters vary greatly, as the diversity of specialisations among the authors is mirrored in the divergent materials and themes that are included.

The first chapter by Sarah Kielt Costello presents us with a particularly striking Sumerian statue, an object holding a “palimpsest of meanings” (p. 41). Working chronologically, Costello considers the various human interactions that may have marked the statue’s life, both conceptually, as its association shifted from anonymous temple dedication to a symbol of cultural evolution, and physically, through episodes of re-use, fracture, repair and modern inscription. It is a model example of what object biography should be, combining stylistic considerations with historical context to enrich our understanding of the statue’s origins and its continuing significance.

In Chapter 2 John North Hopkins delves into the theme of fragmentation, considering two sculpted heads. He describes the challenging nature of establishing secure biographies for fragmented ancient statuary, particularly given the aestheticisation of disarticulated objects on the art market. While he embraces stylistic analyses of these objects as a means to consider their social history and artistic production, he stresses the danger of obscuring incomplete biographies through an overreliance on comparative study. This would allow misattributions and fakes to skew the historical record, hindering future research efforts.

Susan Langdon further elaborates on the distortive effect of collecting in Chapter 3. Her case study, a bronze fawn dated to the Greek geometric period, lacks comparanda from known sites, its portability and abstract style making it popular as a commodified artwork. To provide some semblance of identification, figures have, in the past, been stylistically attributed to particular masters. However, as Langdon notes, this “pile up of biographical speculations” does not provide clearer insight into the history of these objects, but rather muddles it through transposing a modern individualist framework on ancient craft production (p. 78).

Nassos Papalexandrou is the only individual to contribute two chapters to the volume. The first of these, Chapter 4, presents a set of bronze horses as a case study for understanding the wider de Menil collecting ethos. He highlights the couple’s focus on the direct unmediated encounter between humans and objects, without attention to their social or historical contexts. His next contribution, Chapter 8, is more critical and more comprehensive, as he takes on a set of terracotta griffin reliefs, likely illicitly excavated from the Burdur region of Turkey in the early 1960s. In this chapter, Papalexandrou highlights the high cost that removing artefacts from their original context has ethically, materially and in terms of the knowledge we can gain. He is very direct in his call for transparency in the museum. As he points out, the irreversible

¹ <https://cac.rice.edu/sites/default/files/abstracts/CAC%20Overview%206.29.16.pdf>

fragmentation suffered by the archaeological record as a result of the movement of antiquities into cultural institutions implies a social responsibility on their part to engage with and communicate the objects' full biographies.

In Chapter 5, Jennifer Gates-Foster takes us away from Greek bronzes to miniature images of Nubians in the Menil Collection. As she points out, their attractiveness to scholars as emblems of ancient concepts of alterity is weakened by their lack of archaeological context. Their acquisition against a backdrop of orientalist collecting practices connect them with a different set of assumptions about otherness, compounded by the purpose given to them by the de Menils themselves. For them these were not artefacts with the potential to elucidate ancient history but mediators for considering 20th-century race relations in Houston.

Throughout the volume, the side effects of collectors focusing on objects as modern mediators are highlighted. Paul R. Davis' chapter makes this particularly clear, and his consideration of a bull statue is one of the strongest object biographies in the book. The author has sought out every possible indication of provenance, from sales documents to a detailed physical examination in collaboration with conservator Kari Dodson. His research connects the bull to the values of the de Menils, but also their consulting experts and suppliers. The result highlights the constellatory nature of object biographies, defined by a web of individuals and institutions who have given this small object an authenticity that is questionable upon closer inspection.

Chapter 7 is another strong contribution, albeit a bit thinner in its critique of collecting practices. Betsy M. Bryan's biography of the lintel of Ramesses-nakht and Usermaatre-nakht has the qualities of a well-written mystery novel, weaving together extensive archival research with a detailed physical examination of the artefact by the project's collaborating conservator. The lintel's story is captivating and it is easy to imagine this kind of narrative being adapted to public display.

The four chapters that make up part two turn away from the Menil collection to consider provenance research across US institutions.

In Chapter 9, Jessica Powers presents her own work as a curator at the San Antonio Museum of Art. She points to the challenges she faces researching the provenance of the museum's Mediterranean collections, calling for additional funding, shared best practices and broad access to resources like inventories and archives.

The following chapter focuses not on the work of an individual researcher, but of the team responsible for the Museums Antiquities Provenance Project at the J Paul Getty Museum. The three authors — David Saunders, Judith Barr and Nicole Budrovich — narrate the project's history and provide case studies for the various methods deployed by its staff. This chapter will be particularly useful for institutions looking to engage in provenance research but needing guidance in how to set priorities, practices and goals.

Chapter 11 is similarly practically oriented with Victoria Reed laying out a summary of collecting guidelines in the US. This will serve as a valuable resource for professionals attempting to navigate the ethics of 21st-century collecting.

With a focus on collections coming from areas of conflict, the following chapter by C. Brian Rose feels much less critical than those of his predecessors. Though he underlines a need to protect heritage from destruction and nationalist or extremist manipulation, he does so within the framework of museums as stewards and comes off more patronising than he likely intended.

One general thread that runs throughout these chapters, as well as Morag Kersel's Epilogue, is the importance of archaeological context. The authors of the volume do an excellent job at presenting the power of collaborative provenance research to produce knowledge without ignoring the loss that occurred (and occurs) when collecting practices do not meet certain ethical standards. They speak not only to those carrying out provenance research, but also the wider cultural sector as they continuously highlight the need for self-awareness and openness from collectors and institutions.

This insightful volume deserves a place in every museum's library and on every curator's bookshelf.

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Caroline Arnould-Béhar and Véronique Vassal. *Art et archéologie du Proche-Orient hellénistique et romain: Les circulations artistiques entre Orient et Occident*.

- Vol. 1. *Actes de la journée d'études du 11 mai 2017, Institut Catholique de Paris* (BAR IS 2897). Oxford, 2018. Pp. 123, 87 figures (28 in colour). £34. ISBN 9781407316444.
- Vol. 2. *Actes de la journée d'études du 28 mai 2018, Institut Catholique de Paris* (BAR IS 2934). Oxford, 2019. Pp. 143, 89 figures (59 in colour) and 1 table. £40. ISBN 9781407316864.

These two volumes present the proceedings of the first two conferences specifically dedicated to exchanging artistic elements and influences between the Classical and the 'Oriental' worlds in the frame of that magnificent mixing and meeting ground which was, first the Hellenistic, then later, the Roman Near East. The term 'artistic' is, in this case, a semantic umbrella including the most various expressions of art and culture: architecture, town planning, mosaics, funerary art, royal portraiture. The covered geographical area does not limit itself to the Near East (Syria, Palmyra, Dura-Europos, Lebanon, Judea/Palestine) but includes Delos and the Aegean as well as Egypt.

The first contribution by the "maestro" of archaeological investigations in the site of Dura-Europos (Pierre Leriche, *La création urbaine en Orient hellénistique et romain*) discusses the evidence from the small Syrian Hellenistic foundation, demonstrating that at the beginning the settlement was conceived by the Macedonians only as a fortress watching a vital road. After more than one and a half centuries the settlement developed, assuming the appearance of a "classical" Hellenistic foundation. According to the author, this example should induce modern scholars to reconsider established *topoi* concerning the creation of cities in the east by the Macedonians and the now obsolete view of the Greeks as "civilisation bringers" through cities' foundations.

The second contribution by Ségoulène de Pontbriand (*Europos-Doura sur l'Euphrate: lieu de rencontre entre l'hellénisme macédonien et l'Orient parthe et romain*) discusses artistic expression in Dura-Europos focusing on the house of Lysias, a residence rather peculiar in comparison with the other private buildings of the site. The author points out the coexistence of Hellenistic, Parthian and Roman elements in the architecture, in the organisation of space and in the building materials and techniques.

François Villeneuve (*Qu'y a-t-il de grec dans le sud du Levant à l'époque hellénistique?*) discusses the evidence of Hellenisation in the southern Levant, concluding that the proofs of Greek cultural presence in those regions are scarce, the supposed Hellenisation superficial, and thus forcing us to rethink what we know or we think we know about that cultural process.

Éric Morvillez (*Jardin ou cour? La place du végétal dans les espaces découverts des maisons romaines en Orient*) analyses private house structures through the Near East, with particular attention to courtyards and peristyles, in order to find archaeological evidence of the many examples of gardens and open spaces hosting plants present in the late antique texts and depictions. The evidence is scarce in the several sites considered, Apamea, Palmyra, Dura Europos, Berythus and Antioch, and seems to refer exclusively to late antiquity, the same period when most of the literary evidence mentioned by the author was produced. Philippe Jockey (*Circulation et partage des couleurs entre Orient et Méditerranée antiques: la place des "similis"*) considers the use of colours in various artistic productions, and in particular, their circulation between Greece and the Near East: the gold leaf, the Egyptian blue and the rose madder that began to substitute yellow gold, lapis lazuli and purple during the Hellenistic period.

The following three papers are dedicated to the artistic expressions in Judea during Herodian times. Michel Fuchs (*Dionysos en Judée? Le décor végétal, des palais d'Hérode aux tombeaux de Palestine*) presents the stuccos and mural paintings adorning Herod the Great's palaces. According to the author, the decorative themes chosen in connection with the visits of his Roman friends and supporters are the expression of the king's will to adopt Roman lifestyle and artistic taste. The decorative motives from the vegetal world are particularly taken into consideration and connected with the contemporary popularity in Judea of elements connected to Dionysius' cult and mythology. Véronique Vassal (*Motifs géométriques et floraux dans les mosaïques hérodiennes: regards croisés*) analyses the floral decoration in the Herodian mosaics of the baths

of Jerusalem and Masada in order to identify the flowers depicted. In particular, she identifies the frequent use of the lily, the symbolic flower of Judaea. Caroline Arnould-Béhar (*La part des traditions locales dans les décors funéraires de la Judée hérodienne*) discusses the vegetable and floral motives in the Herodian tombs of Jerusalem tracing the artistic imports from the Hellenised west as a consequence of the Jewish prohibitions concerning artistic representations.

The import of forms of representation of the dead in funerary stelae in Hauran is the topic of Sartre-Fauriat's paper (*Le Hauran (Syrie du Sud): un art funéraire entre traditions et influences gréco-romaines*). The innovation, which goes against the Semitic tradition of avoiding human depictions, relates, in this case, to the Roman conquest and the consequent Hellenisation which took place in that peripheral area. These new elements are, of course, introduced and employed according to local traditions.

The last two contributions of the volume concern the first study of a newly discovered mosaic from Amrit (Komait Abdallah, *Pavements de l'époque romaine en Syrie côtière: la mosaïque d'Amrit*) depicting Gaia and Hermes, according to the author, and possibly connected with the place of discovery, and the iconographic themes in the two Nabatean temples of Khirbet Dharih and Khirbe Tannur (Delphine Seigneuret, *Entre influences et singularité: l'art religieux nabatéen de Dharih et de Tannur*). In particular, the investigation focuses on the decoration of the first of the two sanctuaries where mythological scenes, fantastic animals, marine topics and the still enigmatic series of the zodiac provide genuine evidence for the adoption of western themes in Roman Nabatea.

The second and more recent volume is opened by a contribution by Christiane Delplace (*Urbanisme et architecture à Palmyre: le décor architectonique entre Occident et Extrême-Orient*). The subject is Palmyra, the Syrian caravan city, and in particular, the examples of architectural decorations in stone and stucco found in many locations, both private and religious. Several depictions from early Palmyra (from Allat temple, for instance) attest to connections with trans-Euphrates Parthia. Still, the author's interest is stimulated in particular by the stucco figurines and heads produced by local workshops. These, despite their strong Hellenistic character, resemble in style similar pieces found in Kushan sites. Delplace seems thus to suggest the existence of "long-distance" artistic connections along the Silk Road.

The declination of the Doric order in Nabatean architecture is the subject of Jacqueline Dentzer-Feydy's contribution (*Orient et Occident en Nabatène: quelques remarques sur l'emploi de l'ordre dorique*). By examining several cases of column employment in Nabatean sites, the author points out the extensive use of a simplified version of the traditional Doric order or the adoption of a hybrid version with Corinthian capitals. An interesting variation with bases, which resemble Italy's Tuscanic order, leads the author to suppose the importation of such architectural elements from Italy, perhaps through Asia Minor.

Gaëlle Coqueugniot (*Le "marché romain" d'Europos-Doura (Syrie): morcellement et monumentalisation du centre de la ville à l'époque romaine*) reconsiders the different phases of transformation of the agora of Dura Europos from the first occupation of the Hellenistic open space by private buildings in the Parthian period to the building of a *macellum* in Roman times. According to the author, four different phases in the construction of the latter can be individuated. The structure, which was built in the second half of the second century AD after the Roman conquest, fits perfectly in the process of monumentalisation triggered by Roman presence. The resulting structure presents the architectural characteristics of a typical Roman *macellum*, even though the archaeological findings suggest that the activities which took place there were in no way different from those in the other shops of the town.

Nicolas Bel (*Pour une typologie de la stèle funéraire en Syrie du Nord hellénistique et romaine: forme, structure, encadrement*) presents the preliminary conclusions of his research project. For the first time, a scholar aims at collecting and studying all funerary stelae from Hellenistic and Roman Northern Syria (Antioch, Apamea, the coast, Emesene, Cyrestica and the Mid-Euphrates). The author points out that close to types coming from the Greco-Roman west, such as the triangular fronton steles and the rectangular niche examples, other typologies exist which seem to be of local origin: the high steles from Emesene, the "pain de sucre" types from the Cyrestica and the niche steles from Zeugma and Hierapolis.

Bilal Annan (*Les éloquentes aspérités de la mort. Sur quelques reliefs funéraires rupestres d'époque hellénistique de l'arrière-pays phénicien*) investigates rock reliefs from the Byblos hinterland from an iconographical point

of view. Considering the thematic choice of most of the pieces, bear hunting, sacrifice scenes and scenes of mourning, he reaches the conclusion that they were intended to represent funerary portraits in commemoration of notable inhabitants of the region in the Hellenistic period.

Jean-Sylvain Caillou and Hani Nour Eddine (*Le mausolée de Sébasté: nouvelles données*) present the conclusion of the archaeological investigation conducted in 2016, more than one hundred years after the discovery, of a second-century AD mausoleum, east of the city of Samaria, which was rebuilt by Herod the Great and renamed Sebaste. The construction is now in a disastrous state of preservation, lying in pieces and easy prey for thieves, due to the 1979 attempt to dismantle and replace it. The investigation has clarified that the tomb belongs to the classic Greco-Roman category of temple tombs.

Christian-Georges Schwentzel (*La politique iconographique d'Agrippa I^{er} et la circulation des images entre Orient et Occident (37–44 apr. J.-C.)*) discusses some of the most interesting monetary emissions of king Agrippa I of Judea, grandson of Herod who, through his friendship with Caligula and his later support to Claudius, managed to rule for a few years over whole Judea until his sudden death in 44 AD. Scholars distinguish two main groups in Agrippa's coinage. In the first minted in the Hellenised cities of his dominions, he pays homage to his Roman protectors, portrays himself as a Hellenistic monarch and introduces his son as legitimate successor. In the coins of the second group, meant to circulate in Judea proper where the Jewish Law prohibited human representation, he presents himself as a pious Jewish monarch, descendent of the Hasmonean dynasty, even making reference, like in the case of the parasol on one of his types, to the Achaemenids, the ancient protectors of Jews.

Caroline Arnould-Béhar (*Quelques témoignages d'une survivance de la tradition non-figurative dans l'art de la Palestine romaine et byzantine*) establishes an artistic connection between Herodian period Jewish art and the artistic expressions of late antiquity. According to her, a non-figurative tendency continued to exist in the art of the region. Véronique Vassal (*Les mosaïques de Magdala (Galilée): motifs géométriques et floraux*) demonstrates that the recently discovered mosaics of Magdala in Galilea share themes and patterns with similar pieces from Italy and the eastern Mediterranean. Anne-Marie Guimier-Sorbets (*Les scènes nilotiques sur les mosaïques: aller et retour entre Orient et Occident*) follows the origin and circulation of the Nilotic scenes. First appearing in Ptolemaic Egypt, they found their way into late-Republican Italy to spread all over the empire in the Augustan Age, thus circling back to Egypt and the Near East. In these more recent examples, the Roman taste privileged the comic scenes involving pygmies, which took the place of the naturalistic representation favoured by the Hellenes.

The last two contributions deal with the study of amphorae as a token of exchange and circulation of people and goods. Hédi Drudi (*Traces archéologiques et épigraphiques carthaginoises en Égée*), supporting the epigraphic data with the information provided by amphorae findings, delineates a scenario that sees a strong presence and circulation of Carthaginian men and goods in Attica, Delos and on the coasts of the Black Sea during the second century BC. Similarly, Gérard Finkielsztein (*Trente ans d'apports de l'étude des amphores importées au Levant Sud hellénistique*) in the last contribution of the second volume reconstructs, starting from the study of Levantine amphorae, the connections and the role of the region in the Mediterranean trade of the Hellenistic period.

The general topic of the two conferences is vast. The Hellenistic and Roman Near East constitutes a world in itself, a world placed between the Classical west and the 'Oriental' east. It was part of both, a place where elements and influences met and mixed. In the vastness of the topics and disciplines discussed in these chapters, involving all forms of artistic expression and, in general, several aspects of cultural identity, it is easy to get lost. Thus, it is understandable that the collected contributions, scattered and detached, sparse and apparently unconnected with each other in the vast ocean of artistic expression, can offer nothing more than a series of glimpses, a series of small and coloured buoys in the vastness of the sea. Nonetheless, these small buoys can provide to the expert sailor, able to identify the significance of their interrelationships, a general scheme, a route to follow from east to west and back to the Near East.

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Amy Rebecca Gansell and Ann Shafer, eds. *Testing the Canon of Ancient Near Eastern Art and Archaeology*. Oxford: Oxford University Press, 2020. Pp. 468. £64. ISBN 9780190673161.

This volume examines the topic of ‘canon’ in scholarly and popular conceptions of the art of the ancient Near East. The editors define a canon as “those objects, monuments, buildings, and sites broadly deemed to be of the highest artistic and technical merit, that are best known as representative of a culture and widely considered essential to one’s understanding of it” (p. 2). Gansell and Shafer wisely reject discarding the idea of a canon, accepting the formation of canons as both inevitable and useful. The goal of this book is to explore how canons have formed and how they might be improved.

Gansell and Shafer’s opening chapter traces the formation of a canon of Mesopotamian art in the west through examining which objects and sites were chosen for inclusion in textbooks, especially those commonly used in undergraduate art history or specialist courses. What emerges is a canon shaped by the finds of early western excavations, many of which became part of the collections of major western museums. Western considerations of merit were shaped by preferences for naturalistic art and artefacts relevant to biblical history (pp. 2–4, 10–17), and so artefacts like the stele of Naram-Sin or the Black Obelisk of Shalmaneser III rose to prominence in surveys of ancient Mesopotamian art.

The following five chapters apply a similar approach to ancient regions often considered peripheral to Mesopotamia, tracing the development of a canon of artefacts from the southern Levant, Syria, Anatolia, and Iran through textbooks and museum exhibitions. In each case, finds from early excavations combined with western interests and national politics have shaped the perception of the ancient past of each region in the minds of both scholars and the public.

With the exception of the southern Levant, the area surveyed in each of these chapters corresponds to the political boundaries of a modern state. Marina Pucci’s chapter on pre-Classical Syria especially wrestles with this issue, noting that while the Assad regime attempted to use archaeology to promote a unified national identity, the borders of modern Syria actually contain the remains of many different ancient cultures (pp. 71–74). Susan Helft’s chapter on Anatolia also explores this issue, discussing the prominent roles which Turkish scholars of the early Republic played in forming a concept of Anatolian archaeology out of the diverse ancient cultures of the region and equating it with the borders of the modern Turkish state (pp. 90–100).

Building on the insights from these chapters, I would argue the next step in this process should be to question how the disciplinary boundaries created by modern national borders have shaped our ideas of canon. Are modern national boundaries a useful heuristic category for investigating the region’s past, or have they obscured more than they have clarified? Are the Late Bronze and Iron Age cultures found in the north, east, and south of the modern Syrian state better understood when placed in the context of Luwian-speaking polities on both sides of the Turkish border, with Mesopotamia, and with southern Levant, respectively, rather than grouped together under the banner of Syrian archaeology?

A related issue deserving of further exploration is how western canons of ancient Near Eastern art have influenced the formation of canons within the modern Middle East. Paul Collins’ chapter ‘Museums as Vehicles for Defining Artistic Canons’ ably demonstrates how the collections of the British Museum played a central role in the formation of a western canon of Near Eastern art (pp. 232–248). One notes that the National Museum of Iraq holds a similarly spectacular collection, yet with the exception of the Uruk vase and the bronze head of a Sargonic king its treasures have rarely featured in western textbooks. Iraq’s conception of its own ancient past has been heavily influenced by the western canon of Mesopotamian art: Iraqi banknotes, for example have frequently featured artefacts from Iraq’s ancient past, but have consistently chosen to depict artefacts held in western museums, such as the Hammurabi stele, the Assyrian lion hunt reliefs, or the Ishtar Gate, rather than artefacts which remain in Iraq. The formation of a western canon of Near Eastern artefacts has not only defined the canon for observers in the west but has also defined what those in the Middle East find most valuable.

The final eleven chapters of this volume form a section titled ‘Heritage Perspectives’, which the editors state is meant to address “the Western biases inherent in the modern construction of canons, and potentially in our own academic assessments” (p. 18) through reflective essays by scholars from Middle Eastern backgrounds.

Unfortunately, these chapters are only two to three pages long, and one is left wanting more. Kamyar Abdi's essay on the Cyrus Cylinder and Gideon Avni's overview of the role of Masada in Israeli historical memory cover well-worn ground in superficial detail (pp. 299–304). Other contributions range from interviews with members of the Assyrian diaspora about their Assyrian identity, to fictional short stories, to personal responses to the distress caused by the destruction of antiquities by the Islamic State of Iraq and Syria. A few chapters address the issue of canon from a Middle Eastern perspective, including an essay by Oya Topçuoğlu exploring the canon of Anatolian archaeology through artefacts depicted on the wares manufactured by Istanbul's Paşabahçe glass company. Another essay by Tamara Chalabi (the daughter of controversial Iraqi political figure Ahmad Chalabi) argues that the National Museum of Iraq was looted in 2003 due to the close association of its contents with the Ba'athist regime and Saddam Hussein's cult of personality, before describing an art exhibit held in Venice in 2017 where Iraqi artists presented work inspired by pieces from that museum (pp. 305–307). Overall, one is left wishing that the essays in this section had more fully explored the formation of canons within the Middle East.

Overall, the systematic geographic approach taken in the first part of *Testing the Canon of Ancient Near Eastern Art and Archaeology* means that this book will not only be of interest for those wanting to critically reflect on the reception of ancient Near Eastern art, but also for instructors looking to critically examine their own teaching. The endnotes and bibliography for each of these chapters are extensive and would be useful for anyone studying ancient art who is looking for a summary of key works in the field. This volume sparks a much-needed conversation, and one that scholars who specialise in the ancient Near East should engage with in the future.

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